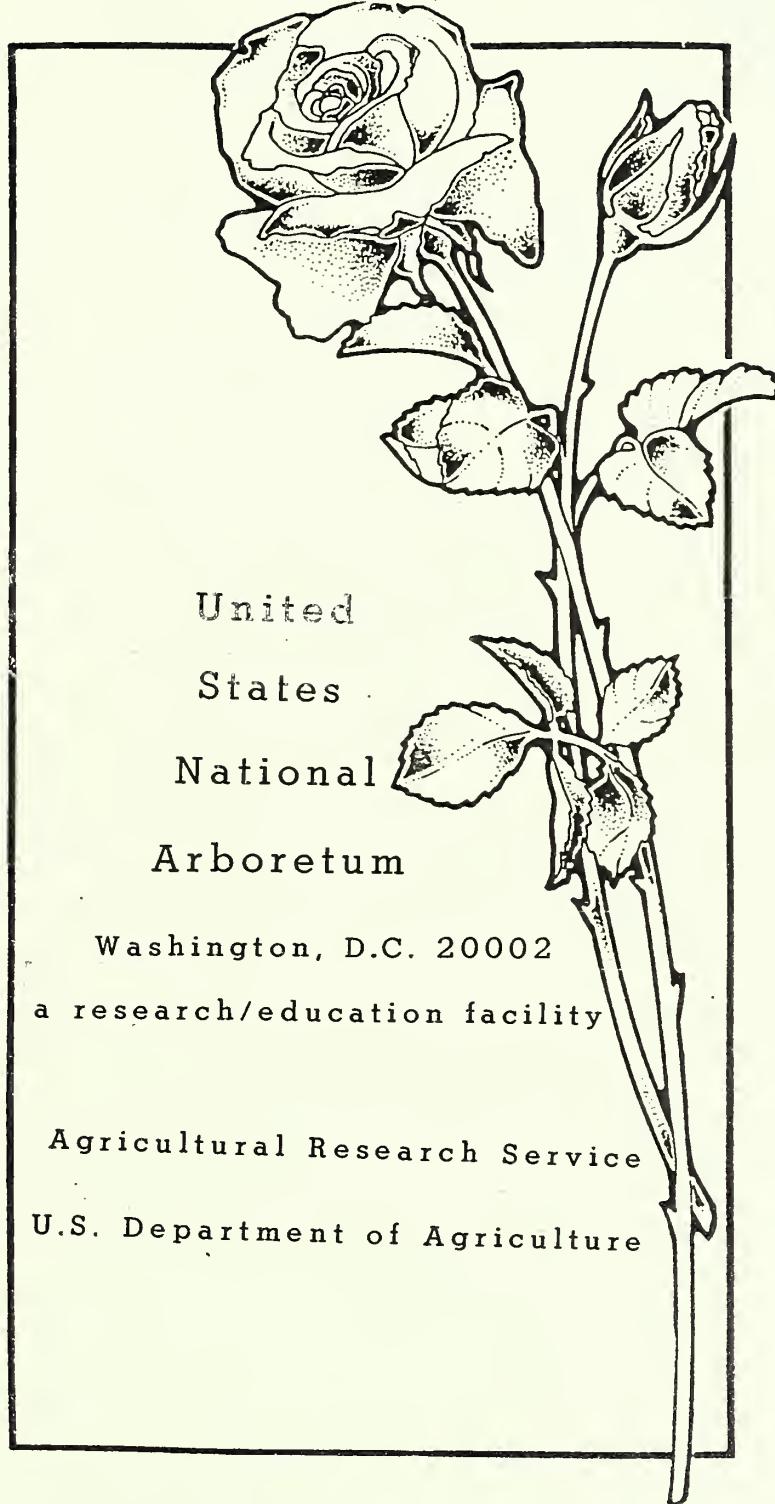


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# ANNUAL REPORT 1986



United  
States  
National  
Arboretum  
  
Washington, D.C. 20002  
a research/education facility  
  
Agricultural Research Service  
U.S. Department of Agriculture

१८ इन्द्रियों का विवरण एवं उनकी विकास की शुरूआत

### मनस्त्रय के लिये विकास की शुरूआत

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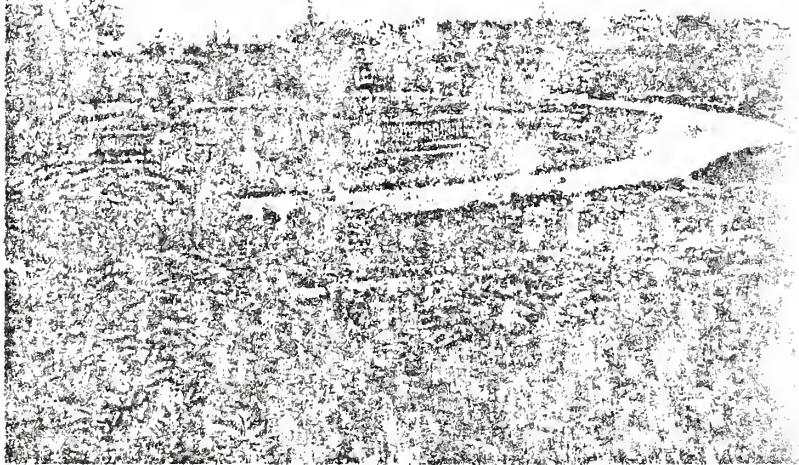
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## Лекция 1

四庫全書



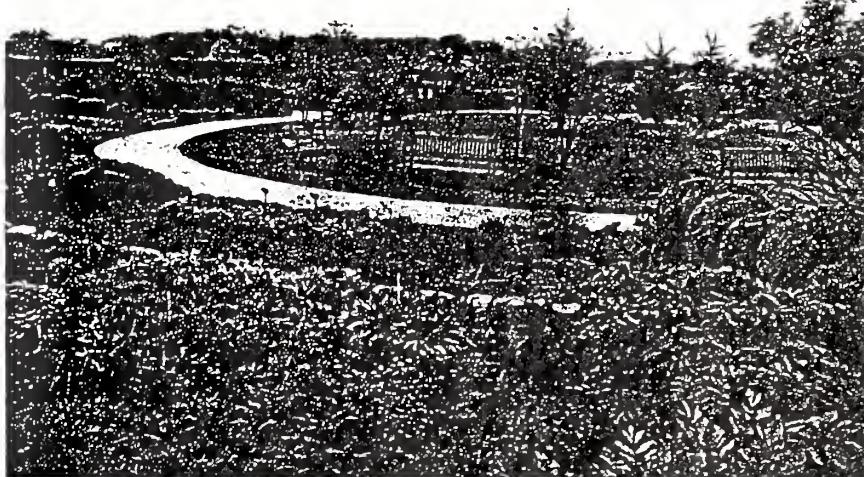
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Learn more about Microsoft Cloud for Retail at [https://www.microsoft.com/en-us/retail](#)

and their 400-500 m dispersal distance, with 50% of seeds 1-10 cm beneath the soil surface at 1000-2000 m elevation. The distribution of *P. polystachya* was relatively uniform, extending from 1000-2000 m elevation, with a preference for higher elevations.

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# 'Viva Arboreta'



MICHAEL SELIG

*The Herb Garden at the U.S. National Arboretum is one of many exhibits designed to educate the public about horticulture.*

Written by Dr. Henry Marc Cathey, Director, U.S. National Arboretum

**A**rbores are such rare places in the world of horticulture and landscape design. There are so few—only 32 in North America—and they are scattered almost randomly around the world. Not only do they harbor rare and unusual specimens, but they also produce new and hardier hybrids through horticultural research and development. This has been of enormous value to a public that is increasingly enthusiastic about everything to do with gardening—including design.

Unfortunately, most arboreta do not staff a landscape architect, and planting arrangements often reflect this lack. The United States National Arboretum (USNA) currently manages 87 gardens and collections within 444 acres on the outskirts of the nation's capital. Several of the most recent—such as the enormously successful National Country Garden exhibit by Guy Rando, ASLA—were designed in conjunction with landscape architects who have generously contributed their expertise.

The USNA is currently building gardens featuring Asian and native plants, herbs, bonsai, water plants, grasses and perennials. We are particularly interested in creating a Great American Garden at the USNA because, although we simulate

garden designs from all over the world, we have never created one indigenous to the North American continent. Designs such as this would greatly increase public appreciation of our native plants.

But three things must happen before arboreta can establish such national treasure troves or preserve, museum fashion, landscape architectural artifacts from the world's rich heritage of garden designs. First and foremost, horticultural research and development must unite with the profession of landscape architecture: *science and art must wed*. This in itself will go a long way toward establishing an active relationship between arboreta and a public that's hungry for hardy plants in well-designed spaces.

Second, the money has to come from somewhere. At the USNA, we've found that the most productive projects combine private financial resources with the services of professional designers.

Third and most important is the need for arboreta to *actively engage* the public and encourage their participation in projects, whatever they may be. Arboreta which place a strong emphasis on *process*—both in design and horticulture, for often the two are the same—will create an awareness among the gardening public of

the possibilities. There is room for everything from the most whimsical to the most practical in an arboretum's effort to further garden design. By teaching about the process of growth in design—as opposed to simply exhibiting 'good' designs—an arboretum will become a local hub for garden activity as it never has before.

There are many ways to advance garden design using the resources of an arboretum. Realistic plantings on our grounds will inspire homeowners, builders and urban planners, and inspire able designers working with the most exceptional collections of plants. The field is wide open for symposia, design and source directories, festivals, experimental designs, functional designs, great gardens—in short, every aspect of gardening and garden design. Leaders of the garden world, professionals and arboretum directors, "Unite!" Let's work together to realize the potential of arboreta everywhere.

The USNA, located at 3501 New York Avenue, NE, in Washington, D.C., is open 8:00-5:00 weekdays; 10:00-5:00 weekends, federal holidays. Education programs are offered 8:00-4:30 weekdays; scheduled events only on weekends. Call (202) 475-4815.

## INTERVIEW WITH DR. R. K. MISHRA

The following is a transcript of an interview with Dr. R. K. Mishra, a noted Indian historian and author. He is currently working on a book titled "The History of Indian Society" which will be published next year. Dr. Mishra has written several books on Indian history, including "The History of India" and "The History of Indian Society". He is also a member of the Indian Academy of Sciences and a fellow of the Royal Society of India.

Interviewer:

Dr. R. K. Mishra

Q: What is your opinion on the current state of Indian society?

A: I believe that Indian society is in a state of flux, with significant changes taking place in various fields. There is a growing awareness of the need for social justice and equality, and this is reflected in the policies of the government. However, there are also challenges, such as the issue of caste discrimination and the need for better education and healthcare.

Q: How do you see the future of Indian society?

A: I believe that Indian society will continue to evolve and change, with a focus on social justice and equality. The government's policies will play a role in this, but it is also important for individuals and communities to work together to address the challenges facing society.

Q: What do you think about the recent developments in Indian politics?

A: I believe that the recent developments in Indian politics are positive, with a focus on social justice and equality. The government's policies will play a role in this, but it is also important for individuals and communities to work together to address the challenges facing society.

ARBORETA: YOUR U. S. NATIONAL ARBORETUM

An arboretum is a very rare place in the world of landscape gardening and design. There are so few of them and located almost randomly throughout the world. Most gardeners, landscape architects, and nurserymen may have visited an arboretum once or several times over the course of many years. The knowledge that resides in the staff and the plants that they introduce into the trade are often learned about second or third hand. Thus, the process of bringing about changes in which and how plants are used to create landscapes is, at best, a slow process.

The objectives of an arboretum should be:

- o A place where information about plants can be collected, analyzed, and available on the basis of programs and user needs.
- o An environment in which individuals with formal or informal backgrounds can continue to expand their knowledge about all aspects of landscape and environmental issues.
- o An opportunity to present at all levels of involvement, the emerging and constantly changing interests in landscaping demonstration and practice.

An arboretum, to function effectively for its users, requires a series of developmental steps to become a viable source of knowledge and inspiration.

Milestones in its creation should be:

To search for "feasible" land, suitable materials, etc.

- o Community recognition that an arboretum is needed.

To organize existing and/or proposed support groups.

- o Public hearing (10-12 hours) with a moderator from outside the community to draw together all interested groups to adopt and agree on agenda and wish list.

If funds are not available, the above can be done on a smaller scale.

To begin conceptional planning, a core group of individuals should be chosen to work together, no larger than four or five people.

To analyze site performance, the following areas are basic:  
o Master Plan: Analysis of site, proposal for use, timetable for implementation, and proposed budget for installation, staffing, and long term operations. A major element of the plan is maintenance--50% stage.

Variables to mean guidelines before finalizing.

- o Identity Plan: Design a logo to be used on grounds, street and interstate highway, directional markers, press releases, maps, stationary, uniforms, and friends organization to reinforce the presence of the arboretum in the community. Build instant recognition of all aspects of program.

and avoid visibility clutter by coordination of a 10' tall sign on one side.

Approved 10

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- o Refinement Plan: Subsets of priorities, creation of curator (coordinator) and support subgroup, landscape design for specific subset by a team (city planner, landscape architect, horticulturist, communicator, public affairs officer, fund raiser) 90% stage by project.
- o Events Plan: Educational events with a defined pattern of occurrence. Week--1st, 2nd, 3rd, 4th; Season--the five seasons of spring, summer, fall, winter, and the yearly holiday/New Year-- communicate the evolving arboretum.
- o Plant Introduction Plan: From other sources around the world, begin an exchange program of seeds and budwood on a carefully defined menu of genera. The plant list must be focused on areas with plant problems and sources with the availability of new germplasm. The pipeline of space, labor, evaluation, and introduction can become clogged very rapidly and can become totally unmanageable. All arboretum must focus on a well-selected changing menu of plants.

The strengths of the U. S. National Arboretum:

- o Site is a fortunate blend of established trees.
- o There is no other facility anywhere around that would compete for its audience of users and friends.
- o Site is placed in the middle of a 40 million/per year visitor city, the District of Columbia.
- o Community is known over the whole world for its gardens and greens with seasons/events that do not occur anywhere else.

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Report to the Honorable Richard E. Lyng  
Secretary of Agriculture  
from  
The U. S. National Arboretum Advisory Council  
December 19, 1986

ЛІСОВИЙ УКРАЇНСЬКИЙ МУЗЕЙ  
ВІДЕО, 1992 рік

Фільм про ліс та лісову промисловість

Ліс - це величезний природний ресурс, який має  
значимість для всього світу. Він є основою  
животного світу та екосистеми. Він є джерелом  
тепла та енергії, які є необхідними для життя.  
Ліс - це також місце для відпочинку та рекреації.

Ліс є місцем для спортивних змагань та інших  
видів активності. Він є джерелом  
лікарських речовин, які використовуються  
в медицині. Ліс є джерелом  
живлення та енергії, які є необхідними  
для життя та розвитку всіх форм життя.

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U. S. NATIONAL ARBORETUM ADVISORY COUNCIL  
October 5-7, 1986

Report to the Secretary of Agriculture

The 1986 meeting of the National Arboretum Advisory Council was held October 5-7, 1986, at the National Arboretum, Washington, D.C. Council members were called to participate in a review of the current research and education programs of the Arboretum and to make recommendations on the future needs of its programs and facilities. Fifteen of the sixteen members were present. Mrs. Janet Poor, Winnetka, Illinois, was unable to attend.

Secretary Lyng appointed Paul Ecke, Jr. to serve as Chairperson of the Advisory Council and Hazel Herring to serve as Vice Chairperson. Three committees were formed as follows: Research - Thomas A. Fretz, Janet Poor, Eliot Paine, William Flemer, Don Shadow, and George Oki; Gardens and Collections - Owen Rogers, William Heard, William Merritt, Frank Schmidt, Andre Viette, and Ann Crammond; Education - Hazel Herring, John Henry Dudley, and John Whitworth.

The Agricultural Research Service designated Howard Brooks to continue to serve as Executive Secretary.

SUMMARY OF MAJOR RECOMMENDATIONS

The Advisory Council recommends that:

1. Additional professional staff should be added at the Arboretum to include a plant pathologist, an entomologist, and a plant stress physiologist and that the Agricultural Research Service (ARS) establish a timetable for filling these research positions.
2. Additional office and greenhouse space should be provided for support of existing personnel and programs and for the desired expansion of these programs.
3. Additional collections should be made of elite cultivated and native plants of interest to the general public and suitable for planting at the Arboretum. Of particular importance is the need for the Department to make a positive response to the invitation to collect woody ornamental germplasm in the Peoples Republic of China.
4. A germplasm repository should be established for woody landscape plants.
5. Means should be found to restore portions of the brickyard, remove potential hazards, and improve the general appearance of the Arboretum grounds along New York Avenue.
6. Plans be developed for an Urban Garden immediately adjacent to the Activities Center and continue the Country Garden for one more year.

APPENDIX

7. Additional written educational material should be prepared and provided to the ever-increasing number of visitors to the Arboretum.

8. Additional curators, weekend guides, and part-time help should be provided to sustain the progress made in research and educational programs and to further encourage public use and appreciation of the Arboretum.

9. Utility systems at the Arboretum should be upgraded so as to increase efficiency of operations and encourage private endowment of new facilities now being considered.

10. Funds should be requested from Congress for a Plant Life Center that would greatly improve accommodations for the visiting public and greatly enhance the opportunity to educate the general public in the benefits of research and plant life educational programs.

#### STATEMENTS OF APPRECIATION

1. The Advisory Council wishes to thank Secretary Lyng; Dr. Terry B. Kinney, Jr., Administrator, Agricultural Research Service; and Dr. Waldemar Klassen, Director, Beltsville Agricultural Research Center for their genuine and continuing interest in the Arboretum. Special appreciation is given to Drs. Kinney and Klassen for providing special funding in FY 1986 for needed renovations and improvements at the Arboretum.

2. The Advisory Council recognizes the many improvements at the Arboretum during the last year and is very complimentary of Dr. Henry M. Cathey and the entire staff for the continuing dedication and untiring enthusiasm in support of the Arboretum's goal of improving society's awareness of the value and usefulness of environmental landscape plants.

3. The Advisory Council wishes to acknowledge and thank the many supporters of the Arboretum and the many valuable contributions they have made. Special thanks are given to Mrs. Betty Rea and the Friends of the National Arboretum and their many volunteers; the National Bonsai Foundation; the Herb Society of America; the supporters of the Asian Valley and the Chadwick Fellow; Oehme van Sweden and Associates, Inc., for the development of plans around the Activities Center; F. W. Moffett, Jr., of the Living Wall Garden Company for generous support to the National Country Garden; and to Robert Lederer, Executive Vice President, American Association of Nurserymen, for his active and consistent support.

The 2-1/2 day meeting consisted of:

- o A welcoming reception and dinner at the National Arboretum with comments by Peter Myers, Deputy Secretary of Agriculture, and Terry B. Kinney, Jr., Administrator, Agricultural Research Service.
- o Charge to the Advisory Council by Paul Ecke, Chairperson.
- o Briefings: Dr. Howard J. Brooks, Executive Secretary, National Arboretum Advisory Council  
Dr. Henry M. Cathey, Director, National Arboretum
- Presentations: Mrs. Betty C. Rea, President, Friends of the National Arboretum  
Mr. Robert Lederer, Executive Vice President American Association of Nurserymen

- o Tour of grounds and facilities and presentations by individual staff members.
- o Committee deliberations and presentation of reports.

The three committees made a number of suggestions and recommendations on the direction and activities of the Arboretum as follows:

#### RESEARCH

##### 1. Additional Research Staff

The Advisory Council recommends that efforts continue to develop a well-balanced and complete research staff to include a plant pathologist, an entomologist, and a plant stress physiologist, all with training and experience with woody landscape plants. We urge that ARS establish a time table for filling these positions. We also recommend that the Director and research staff establish priorities for filling new positions or filling existing positions when they become vacant.

##### 2. Germplasm Collections Needed

Germplasm collections are the life's blood and backbone for both the research and educational functions of the Arboretum. We urge that efforts continue so that scientists can collect germplasm in Asia and throughout the world. We would like to urge the administration to make a positive response to the invitations to collect in China and Korea. We view the invitation to collect germplasm in China as an opportunity for continuing expeditions. The Department needs to recognize this as a once-in-a-lifetime opportunity.

3. Displays of Introduced Germplasm

We recommend that introduced germplasm be displayed on the grounds of the Arboretum. In the past, germplasm has been acquired on expeditions yet it rarely ends up being featured on the Arboretum grounds. The future of valuable or unique germplasm collections basically needs to be assured a location on the Arboretum grounds.

4. Need for Germplasm Repository for Woody Plants

The Advisory Council fully endorses the concept of a woody plant germplasm repository being established at the Arboretum for the explicit purpose of collecting and maintaining a germplasm bank to serve the entire United States. We urge that the Plant Introduction Station at Glenn Dale, Maryland, be seriously considered as the location for this clonal repository.

5. Native Plant Collections

We recommend that germplasm collections of native U. S. woody plants be made, particularly collections of Halesia, Oxydendrum, Cornus, Cladrastis, Stewartia, Aesculus, Robinea, Amelanchier, Calycanthus, Viburnum, Hamamelis and Ilex (particularly Ilex verticillata).

6. Virus Indexing of Ornamental Cherries

We urge that the ornamental cherries recently collected in Japan and now located at Glenn Dale, Maryland, be indexed for viruses and released. We urge ARS to fully support the virus indexing facility at Glenn Dale so that this bottleneck to introduction and evaluation of introduced plant material can be eliminated.

7. Checklist of Southeastern Flora

The Advisory Council supports the development of the checklist of Southeastern U. S. Flora and recommends that a timetable be established for the completion of this project.

8. Need for Compactors at Arboretum

The herbarium is an integral part of the Arboretum's research and scientific function. We recommend that compactors be purchased so as to make maximum use of existing space in the main Administration Building.

9. Additional Greenhouse Space Needed

We recommend that the greenhouse renovations continue with emphasis on reglazing and installation of automated vents. Two additional poly houses are recommended for construction for the germplasm programs. Renovation of Dr. Egolf's tissue culture laboratory should be given high priority.

10. Maintenance of Research Plots

We recommend that funds be allocated for an additional subprofessional position to maintain research plots at the Arboretum.

11. Staff Involvement in Research Direction

We recommend that the research staff convene at an off-site retreat on a yearly basis to focus attention on program direction, personnel needs, facility needs, and usage and reallocation of resources.

GARDENS AND COLLECTIONS

1. Brickyard Restoration

The Advisory Council recommends that the Department find means for restoring portions of the brickyard to be preserved and to demolish the remaining structures. Potential hazards and the unsightly appearance of the brickyard require an early resolution of this problem.

2. Additional Curators Needed

The Advisory Council notes with pleasure that funding has been obtained for a curator for the holly-magnolia collection. It is recommended that efforts continue to acquire curators for the public areas and the Capitol Columns. The Council is pleased that biological aides have been funded for the dogwood, bonsai, and holly-magnolia collections.

3. Part-time Employees Needed

The Advisory Council notes with pleasure the improvements made in many of the gardens and collections. The curators are to be commended for their endeavors in this regard. However, the Advisory Council considers the need for four additional part-time employees crucial to sustain the progress made.

4. Office and Greenhouse Space

The Advisory Council is greatly concerned about the need for additional office and greenhouse space to support the research programs and the gardens and collections.

5. Additional Irrigation Systems

The Advisory Council recognizes the immediate need to develop an irrigation system to support the various collections on the grounds which now cannot be irrigated.

6. Urban Garden

The Advisory Council recommends that planning be started as soon as possible for the development of an Urban Garden immediately adjacent to the Activities Center. In the interim, we support the continuation of the Country Garden for one more year if full outside funding can be obtained.

7. Plant Explorations

The Advisory Council supports the proposed plant explorations for the collection of elite cultivated and wild material. An overall policy on plant collections should be established.

8. Penjing Plants

The Advisory Council is pleased that the Department has accepted Mr. Wu's gift of 31 penjing plants and that these plants are now under competent care in plant quarantine at Glenn Dale. The Council will be interested in learning, at its next meeting, of plans for the display of this collection.

9. Complete Grid System

The Advisory Council recognizes the need to revitalize and complete the grid system at the Arboretum so as to facilitate mapping and computerization of plant records.

10. Landscape Along New York Avenue

The Advisory Council is, for the second year, concerned about the large earth fill along New York Avenue and encourages that plans be developed for the prevention of erosion, for landscaping, and for effective utilization of the area. Grading and new plantings would make the area more natural and more pleasing to the public.

11. Creative Use of Gift Act

With the curtailment of Federal funds for agricultural programs, the Advisory Council recommends the examination of creative ways the Gift Act can be used to supplement known deficiencies at the Arboretum. Examples include the donation of vehicles and grounds maintenance equipment by manufacturers and the printing of Arboretum tour maps by one or more of the horticultural societies.

12. Upgrading Utility Systems

Deficiencies in the existing utility systems impairs present Arboretum operations and impedes the private endowment of new facilities. The Advisory Council recommends that the contract for the Master Plan be expanded to include determining locations and conditions of existing utilities, planning the upgrading and extensions necessary to support the Master Plan, and preparing a budget for modernizing the Arboretum utility system.

13. Improve New York Avenue Entrance

Traffic patterns along New York Avenue are not conducive to convenient access to the Arboretum. The Advisory Council recommends that the Department work closely with the Government of the District of Columbia, The Washington Times, and other affected property owners as necessary to provide visitors with a well-marked entry to the Arboretum.

14. Inventory Needed at Brickyard

The Advisory Council recommends a complete inventory of bricks and other building materials at the brickyard.

15. Support from Friends of the National Arboretum

The Advisory Council is most pleased to acknowledge the continuing support of time and substance from the Friends of the National Arboretum.

EDUCATION AND PUBLIC AFFAIRS

1. Inappropriate Development Encroachment

The Advisory Council recommends that the Department support the Washington, D.C. Commission of Fine Arts in preventing inappropriate development encroachment adjacent to the Arboretum along New York Avenue and R Street.

2. Plant Life Center

The Advisory Council recommends that ARS request funds from the U. S. Congress for the planning and construction of a Plant Life Center. This Center would provide the central focus for improving educational services to the general public and would provide information on the value and use of plants, their role in the development of civilization, and their importance to world agriculture.

3. Weekend Staffing

New or existing funds should be allocated for at least four part-time staff assistants to work on weekends and holidays. College students should be recruited from the Department of Horticulture at the University of Maryland or from other horticultural programs.

4. Written Educational Material

To accommodate an ever-increasing number of visitors, the Advisory Council encourages continued improvement of interpretative guide material and brochures to include material on research projects and new plant introductions.

5. Public Affairs Officer

The Advisory Council renews its strong recommendation first made in 1985 that a professional public affairs officer be employed to fill the critical need for promoting contacts with the news media, developing public relations programs, and otherwise promoting the theme "The Arboretum Belongs to You."

6. Continue Special Education Programs

The Arboretum staff is encouraged to continue with the Living Legends program sponsored by FONA and weekly radio appearances by Dr. Cathey.

7. Volunteers

We encourage the staff to continue to recruit and train knowledgeable guides for tours of each specialty collection. We further recommend that staff and curators be encouraged to reach out to the community to attract additional volunteer workers.

8. Cassette Visual Presentations

Develop cassette visual presentations of overall Arboretum activities and specialty gardens. This would greatly assist in general public understanding of the scope and nature of Arboretum research and educational programs.

9. Portable Tape Players

We recommend that the Arboretum staff develop interpretative audio presentations for gardens and collections that can be made available to Arboretum visitors. We also recommend that a VCR and motorized screen be purchased for general presentations to the general public.

10. Garden of Champions at the Main USDA Building

The Advisory Council continues to encourage the Department to establish a Garden of Champions at the main USDA building in Washington, D. C., which would feature plants developed as new plant introductions from the Arboretum. The Council further recommends the display in the Garden of Champions of weatherproof display racks containing brochures about Arboretum introductions.

11. Urban Center

We urge the continued development of the Urban Center around the existing Activity Center and gardens.

12. Traffic Count

An effort should be made to get an accurate estimate of the number of visitors at the Arboretum during each season.

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October 6, 1986

NATIONAL ARBORETUM ADVISORY COMMITTEE  
Robert F. Lederer, EVP  
American Association of Nurserymen

When the Gramm-Rudman Bill became law, it meant that every part of government would be faced with the need to take a hard look at all of its programs and make critical decisions on which should be discontinued, which should be cut back, and which were important enough to be fully supported. One of those departments faced with the toughest decisions was the Department of Agriculture, and as a major part of that Department, the Agricultural Research Service -- our friends Dr. Kinney, Dr. Army, Dr. Brooks, Dr. Finney and many others had their work cut out for them. In the final analysis, they concluded that activities of the National Arboretum fell into the group to be fully funded. We deeply appreciate that decision as an Advisory Committee, as citizens and as the nursery industry. It means the dreams and the hard work of many who are affiliated with the Arboretum, both as volunteers and as paid employees, will continue to grow, and the Arboretum's importance as a research and education organization will remain strong.

You have heard it before, but let me read to you a part of the enabling legislation that created the Arboretum. That part that's involved with its mission -- "The Secretary of Agriculture is authorized and directed to establish and maintain a national arboretum for the purposes of research and education concerning tree and plant life." And then it goes on to say, "In order to stimulate research and discovery, the national arboretum shall be under competent scientific direction and administered by the Secretary separately from the agricultural, horticultural, and forestry stations but will be so correlated with them as to bring about the most effective utilization of its facilities and discoveries."

In my very few minutes with you today, my assignment is to tell you what the nursery industry needs from the Arboretum. Frankly, I cannot do it better than Congress did it in 1927. As an industry we sell a product that vastly improves our environment and the lives of each of us. It is a product of agriculture, and it is grown by farmers. And as farmers, we look to the United States Department of Agriculture for assistance in making our product the most useful it can be to mankind. We have never asked for subsidies. We do not need government to store our products when they are over-produced. We do not need to be paid to take land out of production. We are getting better and more independent every day at helping people to understand the importance of using green, growing plants every where around them. Where we do need help, because we are an industry based on the production of farmers, is in creating better products, so that people can use plants they know will grow and prosper under even the most difficult of circumstances. We need that first mission assigned by Congress. We need research -- research that locates and perfects better plants of all kinds, research that tells us how to grow more healthy products that will give their ultimate users a greater chance for success, research that shows us how to treat disease and control predators like the gypsy moth or the Japanese beetle.

I like to say, and I very firmly believe this, that those products of agriculture which fit into the category of green, growing plants, and I mean trees and shrubs and foliage and ground cover, are at the top of the list with other important agricultural crops. And I also know that they head that list, or should head that list when we look at crops that create the image of agriculture and the United States Department of Agriculture. You might have your Rice Krispies or Wheaties for breakfast and pork for dinner occasionally, but each time you walk outside you are literally surrounded by the green, growing plants of the nursery portion of agriculture. Look out nearly any window in any city, and you will see trees and shrubs and ground cover that were born in a nursery with a farmer as the mid-wife. They are so much a part of us, it is often forgotten that our thanks is to agriculture for their existence.

This arboretum has the potential to be our products most important research center. It has an excellent nucleus of scientists with land available to them both here and at other nearby U.S.D.A. facilities. They lack adequate laboratory and administrative space, and that is a tough nut to crack in these days of tight money. It is our hope that such space can be made available here in existing buildings with necessary changes and compacting of the herbarium. We are very impressed with the research potential and leadership here, and with the increasing support of the Agricultural Research Service we are very encouraged.

Over the years the American Association of Nurserymen has shared with the Arboretum a long list of research needs. Many of them are goals of the Arboretum today. I don't think there is any question that our first need is product research. Our product is plant material. Where better should we turn than to the National Arboretum. These new products have need for -- not so much beauty -- but for functionality, salt resistance, high impurity absorption capacity, consistent leaf dropping characteristics (to reduce street maintenance costs), quick growing, but strong hard wood, long life qualities, greater survival when transplanting, smog resistance -- you name it -- a whole raft of qualities we didn't know we needed 20 years ago.

Nurseries simply are not research organizations. They must depend on others, primarily for the long term research needed to build new products. Look at what one Arboretum development -- Pyracantha 'Mohave' -- means to the nursery industry and its customers. It describes just what we need -- a new product with built in resistance to the diseases that have always restricted the Pyracantha market, and it didn't happen by accident. It was the result of programmed, mission oriented research. Scientists here knew what was needed -- knew how to go ahead -- and could spend the necessary 10 years to get it.

The National Arboretum has many functions, but there is no doubt in my mind that the value of the plants developed here would easily, alone, pay for the total operation here.

And while we are about this research, we must always remember to relate Arboretum developments to environmental concerns. Let's emphasize the fact that scientists here are deeply involved in helping Mother Nature improve her green growing gifts to us all, so they will survive downtown, will retain a river bank and keep impurities from polluting the water, will resist destruction by winter salting, so they can give sight and sound protection to people living along a highway; will shade a house in summer reducing energy needs for air conditioning and lose leaves in winter to let the sun help produce heat thus reducing energy consumption.

Enough said -- we need the Arboretum to improve our product and to develop new ones. The contribution made to our economy as a result of Arboretum activities in this area more than pay the costs of research. We need to pass that message on all of the time.

The second terribly important area which is of high value to the nursery industry and the public is in telling people what products are available and how to use them. This Arboretum is strong on the first, but has the capacity for tremendous improvement in the second. A wonderful collection of plants is all around us, but their functional usage can escape even a careful observer.

I am not telling you anything new when I say plants here should be displayed in a way that shows me 1-2-3 how to use them. Why not build model driveways -- straight, curving, long and short -- and landscape them properly. Why not build different house facades and landscape them properly. Why not put 10 different ground cover plantings along a stream or have an area of the Arboretum that shows 15 or 20 different living fences available to us all. Why not feature an area of plants that, by actual tests, produce more oxygen, filter air impurities more efficiently. How about a patio, properly landscaped with a living filter over it to protect the family below. And don't forget examples that show energy saving uses of plant material -- a shade tree on the south side or a vine growing on a trellis on a southerly wall, or a living wall to direct wind currents.

How about an Arboretum that has, in addition to the Gotelli Collection or the camellia garden, an energy display area, a peace of mind display area, an erosion control exhibit, a food production short course.

Yes, this nursery industry, above all others, needs a strong, productive National Arboretum. We, along with the public, benefit tremendously from its fine work.

Reading back in the hearings that established this Arboretum, it was interesting to note that those who fought for it were described as "a small group of men and women attempting to overcome a mountain of uninterest, inertia, and the perpetual problem of inadequate funds."

We have come a long way since then. If you don't believe that just look around this room -- a group of terribly busy and influential people who are willing to take time to study and support this Arboretum, backed up by powerful people from government who support your goals and who have made their pursuit possible by fighting for us when it counts. Never let it be forgotten that we are funded adequately because our good friends in USDA believe, as we do, that this Arboretum deserves support.

I'll stop there with thanks to all for letting me once again make a matter of record the strong support of the nursery industry for all that is done and all that can and will be done here at the United States National Arboretum.

# RIVER FARM ADVANCES

FOR THE U.S. NATIONAL ARBORETUM



- o RIVER FARM ADVANCES:

- o At George Washington's River Farm, Mt. Vernon, VA  
Headquarters of the American Horticultural Society
- o One-day experience for all staff
- o Answer questions/discussions/group recommendations
  - What should the USNA be doing?
  - What should the Unit be doing?
  - What should I be doing to improve the programs of the USNA?

- o Dates: Unit November 1986

Research	17
Gardens/Collections	12
Education	18
Facilities	14
Administration	13

- o Lunch/refreshments provided by FONA
- o Transportation to be arranged by Unit Leader
- o Leave at 8:30 a.m. and return by 3:30 p.m.
- o PRODUCT: List of Ideas, Initiatives, and Priorities from sessions of joint planning



RIVER FARM ADVANCES = NOVEMBER 12, 1986

- o Questions = What should the USNA be doing?

GARDENS	= What should my Unit be doing?
AND COLLECTIONS	= What should I be doing with my garden/collection?
UNIT	= What should I be doing to improve the programs of the USNA?

- o Schedule =

<u>Time</u>	<u>Event</u>
8:30 a.m.	Leave USNA
9:15 a.m.	Arrive GW's River Farm
9:15 a.m.	Cathey - Direction for Day Overview
10:00 a.m.	Break
10:15 a.m.	Group Discussions - Ideas
11:00 a.m.	Reports from Small Groups
11:30 a.m.	Group Discussions/Priorities
12:30 p.m.	Deli Luncheon - Funded by FONA
1:30 p.m.	Cathey - Issues of Concern
2:15 p.m.	Break
2:30 p.m.	Summation/Follow-up
3:00 p.m.	Return to USNA

SERVICE AT USNA = AVERAGE YEARS

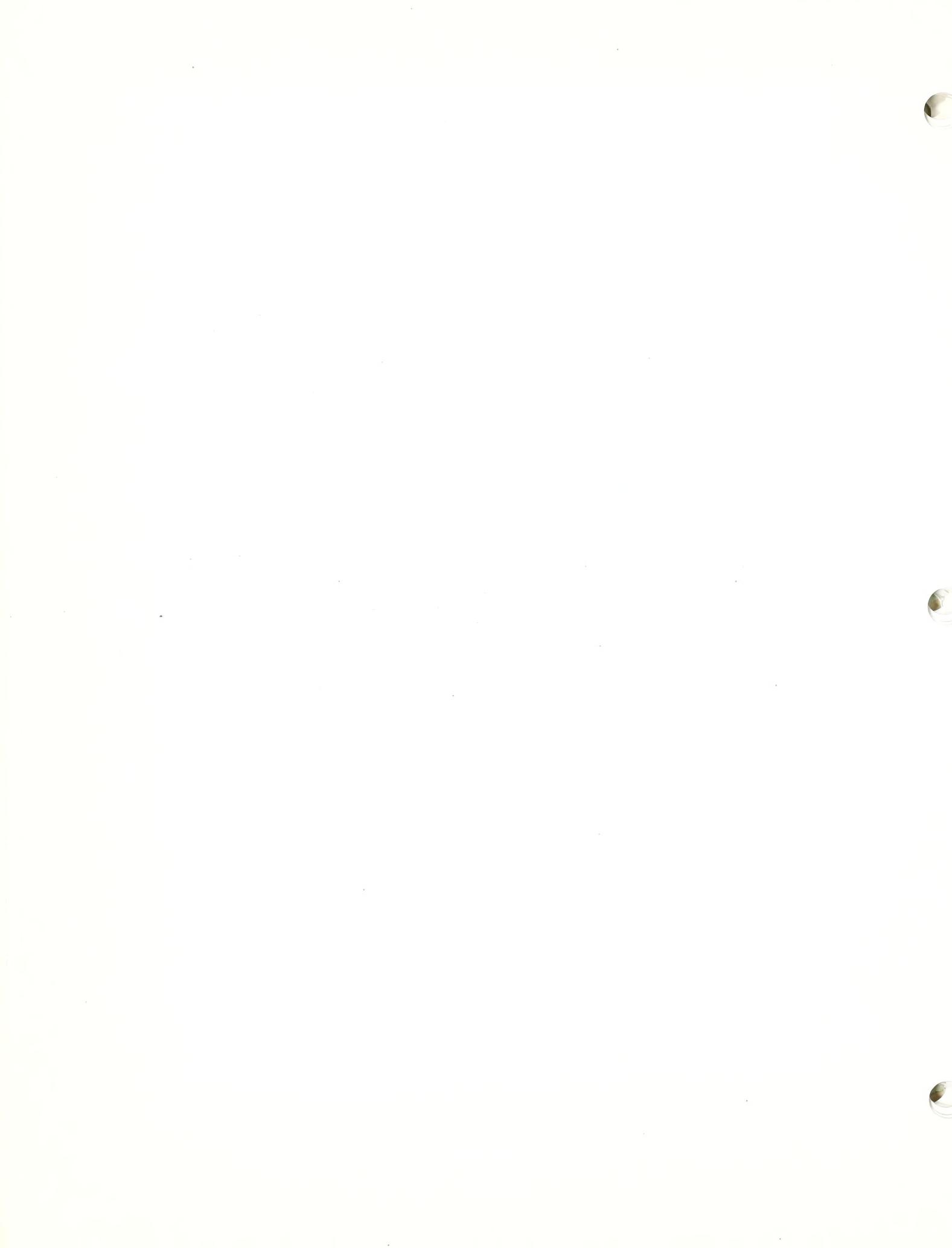
- o Gardens/Collection = 8, 7, 9, 2, 31, 29, 1, 4, 3, 1, 20 | 10.1 |
- o Administration = 12, 8, 3, 2, 1, 1 | 4.5 |
- o Facilities = 20, 21, 3, 17, 18, 20, 10, 22, 1-1/2, 32,  
13, 17, 14, 19, 15, 32, 20, 15, 31, 1-1/2 | 16.2 |
- o Research = 18, 3-1/2, 1/2, 20, 27, 23, 2-1/2, 10, 1/2, 30,  
6, 22, 32, 9, 17, 20, 1, 2, 24, 27 | 14.2 |
- o Education = 14, 20, 2, 20, 1, 2-1/2, 1 | 8.6 |

GARDENS AND COLLECTIONS: WHAT SHOULD USNA BE DOING?

1. Establish procedures to locate a specific plant on the grounds of USNA?
  - Use Plant Records Files
  - Use Education office
  - Need to reinstate GRID system
2. Schedule on a monthly basis (at least) a time to share information about the PLANTSMAN(WOMAN)SHIP of the USNA?
  - Involve gardens/collections/research education/facilities staff/Washington Horticultural Community
  - Event open to all participants (employees) but on an informal basis
  - Gathering in Auditorium - 60 to 90 minutes - over lunch -
  - Share: Plants on Display
    - : Slides-to-show
    - : Books-to-display
    - : Meetings attended
    - : Trips to highlight
  - Mechanism for staff to be updated on what is actually happening at the USNA
3. Schedule on a yearly basis a set of tours to inform/upgrade staff about other gardens/collections/research in the D.C. area
  - Special tour to other sites during off season. Learn what/how facilities are managed
  - Select a theme - definite schedule, planned area
  - Tour (behind the scenes) of USNA
4. Create position(s) to welcome visitors to the USNA on the weekend and Federal holidays
  - Present information about Arboretum, Q & A capacity
  - Utilize Fellows (Wednesday through Sunday) to be in gardens to receive visitors and answer questions
  - Specific person should be in Administration Building to command operations and direct people
  - Funding possibilities, creation of Public Affairs Officer and office
  - Invite visitors to become member of FONA
  - Need Librarian/Information Assistant full-time in Library to assist public and USNA staff
5. Implement the installation of signs on the grounds of USNA
  - Signs on the streets of D.C. are bringing visitors to USNA, but we have no consistent plan/design concept for grounds
  - Traffic system should become one-way - per MASTER PLAN
  - Garden/Collections signs should have similar design and lead to areas
  - Interpretive signs in areas should communicate
6. Establish procedure to rate priorities for jobs/maintenance/installation
  - Joint planning between units to assign priorities
  - Project should move up ladder as jobs and emergencies are handled

7. Input into MASTER PLAN of USNA?
  - Review by staff USNA
  - Purposes of programs/plans
  - Time schedule for review/approval
  - New ideas to be included
8. Monitor the recruitment and placement of volunteers as guides, aids, and workers
  - Increase recognition of volunteers as a vital part of the programs of the USNA
  - Coordinator to secure job descriptions, 171's and related paperwork to bring volunteer on board
  - Announcement procedures to recruit new volunteers relating to specific areas of interest
  - Sign in/sign out books in Activity Building and Greenhouse to provide a record of service
  - Arrange an initial meeting to give new volunteer an orientation
  - Arrange a feedback session from all volunteers to consider their suggestions to strengthen our volunteer program
9. Arrange, on a regular basis (preferably weekly), the communication between Unit Leaders
  - Discuss problems of concern
  - Plan exchanges, cooperative programs
  - Set priorities
10. Review distribution and use of space at USNA
  - Consolidate staff into related Units and functions
  - Herbarium - install contactors
  - All space: Office/greenhouse/laboratory
  - Essential to provide a safe place to hold personal items while out on the grounds
  - Private space for writing and preparing reports
11. Build a warehouse to store all of the equipment needed to operate the gardens/collections/research, and education unit
  - Currently difficult to monitor and protect equipment/supplies, tends "to walk" away
  - Cages with locks for individual storage of equipment/supplies related to programs
  - Select someone to be in charge of inventory, keep accurate records of use for future budget planning
  - Empty offices of "stuff" now being held because unsafe elsewhere
  - Cooperative sharing of all resources of USNA
12. Establish a procedure for small but urgent work requests to be accomplished
  - Feedback as to how the priorities for work requests are set
  - Select one staff member to handle small items, perhaps assigned to the garden/collections unit
  - Streamline request system

13. Provide orientation/training for new employees
  - Visit various areas/units/functions to know what is going on at USNA
  - Introduction program at regular monthly staff meeting
  - Supervisor should arrange tour, introductions to other staff members
  - Orientation films/policy reviews
14. Set up a program for someone to coordinate the physical acts of managing the greenhouse
  - Curators are on grounds - very difficult for them to monitor greenhouses at a distance
  - Must be a cooperative effort between Units
15. Living Legends and other public events should stress the living collections of the USNA
  - Major speeches/tours each year by each curator in area of responsibility
  - Related information should be created to reinforce the living collections
16. Establish a policy that existing collections/gardens should have first priority for resources
  - No new major collections without funding on a continuing basis
  - Reinforce existing programs
17. Establish a regular schedule of maintenance for equipment and facilities
  - Regular vehicle inspections



## GARDENS AND COLLECTIONS: WHAT SHOULD WE BE DOING? SPECIFIC PROJECTS/NEEDS

### I. DISPLAYS

#### 1. Burrell: Fern Valley

##### A. Upgrade/repair:

Spill ways  
Ponds  
Waterfall  
New trails  
Erosion/Undercuts  
Remove trees  
Walks  
Watering System

PLAN	COST

National Meeting at USNA in 1988 (Spring) of American Daffodil Society

##### B. Nature trail for children in area next to parking lot:

PLAN	COST	Signs/Trails Booklet

#### 2. Yinger: China Road in Asian Valley

##### A. Grade/Prepare:

Walk  
Planting  
Watering System

PLAN	COST

: Gazebo Area in Asian Valley

- : Repair structure
- : Add viewing platform on bluff
- Walk, structure, railing, benches
- : Plantings

: Korean Hill in Asian Valley

- : Walled structure
- : Plantings of collected Korean material
- : Water feature to be added

##### B. Camellia Area:

- : Replace plantings with a garden structure/  
Japanese Farm House (MINKA)

- : Become storage facility in area distant from greenhouse/headhouse area
- : Use structure for retreats/special educational programs

3. Schism: Mt. Hamilton: Rhododendrons

<input type="checkbox"/> PLAN	<input type="checkbox"/> COST	: Drainage
		: Water birds/lock controls
		: Raise beds/install trails
		: Trellis repair
		: Tree work/safety hazard
		: Replace damaged bricks/walks

National Meeting at USNA in 1988 (Spring) of American Rhododendron Society

4. March: Administration Building

Activity Building

<input type="checkbox"/> PLAN	<input type="checkbox"/> COST	: Irrigation system
		: Replacement of landscape plants

National Meeting at USNA in 1987 (August) of Perennial Plants Incorporated

Batdorf: Aquatic Garden

<input type="checkbox"/> PLAN	<input type="checkbox"/> COST	Filter system to display fish

5. Shimizu: National Herb Garden

<input type="checkbox"/> PLAN	<input type="checkbox"/> COST	: Expand Rose Garden
		: Collection of cultivars of major herbs
		: Hot water/toilets in area (in work shed)
		: Greenhouse/classroom for holding plants over winter and is soundproof for classes

Meeting: International Herb Growers

6. Drechsler: National Bonsai Complex Proposal by  
NATIONAL BONSAI FOUNDATION

7. March: National Shrub Garden

<input type="checkbox"/> PLAN	<input type="checkbox"/> COST	: Center Panel of USNA
		: Show achievements of USNA, other Arboreta, and Nursery Industry

8. Staff: North American trees

PLAN	COST	: Landscape tree - collection to be displayed throughout grounds
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II. Housekeeping

1. Computerized label maker:

- Engraving
- Embosser
- Labeler

2. Picnic Facilities: M Street Area

- Add more tables/picnic tables
- Install animal-proof cans

3. Computerization of USNA:

- Plant Records
- Schedule classes, tours, events
- Mailing lists
- Information terminal - about plants
- Establish GRID System for plantings

4. Videos for the USNA:

- Joint FONA & USNA
- General tour of features
- Commercial equipment \$7,000

5. Cassettes for the USNA:

- Self-guided tour
- Teaching aid

6. Bicycle racks on grounds of USNA

7. Tram system for those who visit  
to see major features of USNA:

- Combine cassette and tour into one controlled and programmed experience
- Implement recommendation of Master Plan

8. Cart for Interior Plantscaping in Administration Building

9. Concrete base at shops area to store sand, peat, mulches

10. Lunchroom: Provide area in  
- Administration Bldg.  
- Shops Area (upgraded)

11. Utilities at USNA: Upgrade

PLAN	COST	- Electrical: Increase capacity - Water: Increase capacity for the grounds - Sewage: Increase capacity

System is rapidly becoming totally unacceptable to handle, in an orderly way, the development of the USNA

12. Day Care Facilities for Staff

13. Travel funds for curators and educational staff - professional development

14. Woody Plant Repository for USNA

PLAN	COST	Utilize land at - Glenn Dale - Beltsville

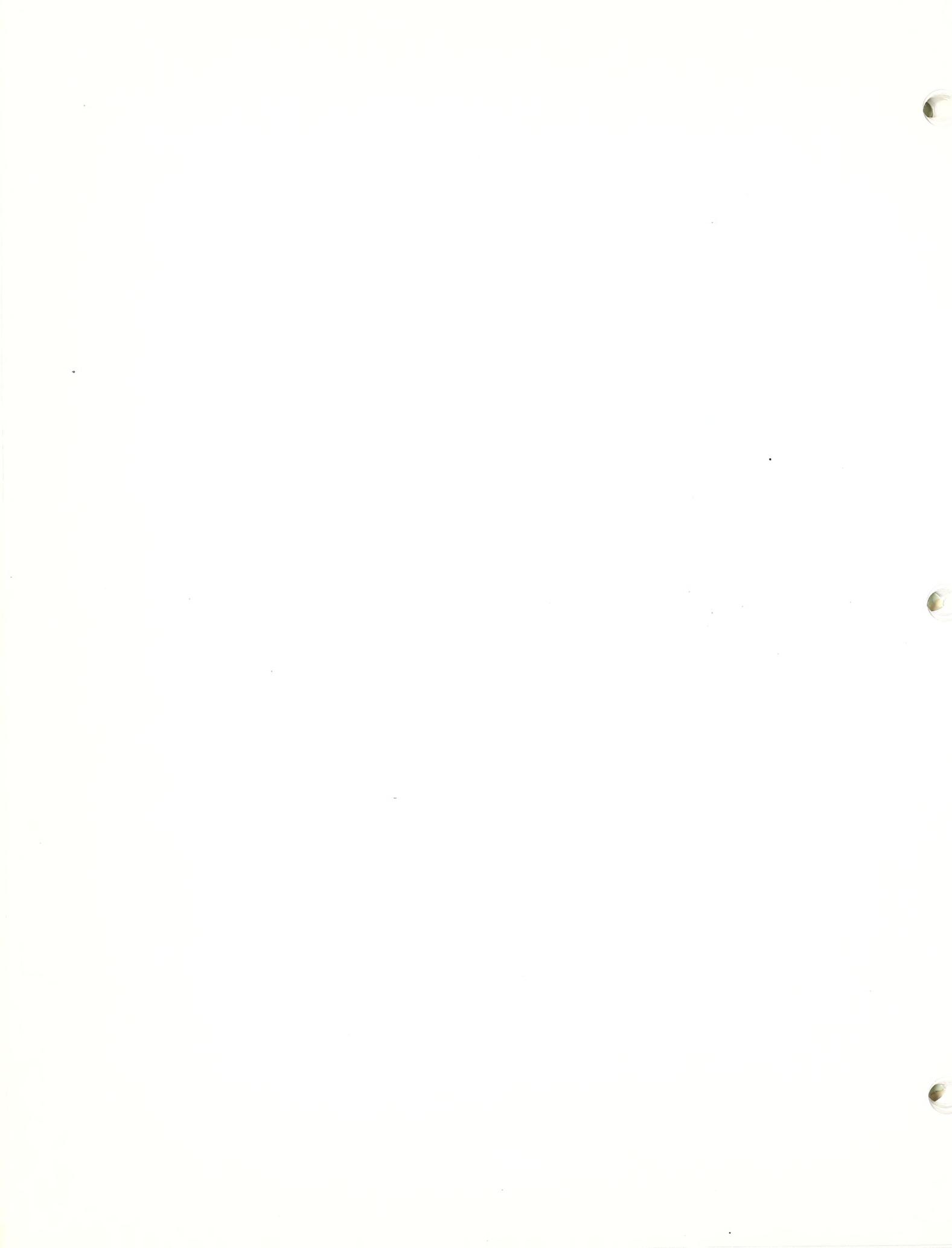
ADMINISTRATION: WHAT SHOULD WE BE DOING? USNA

1. Goals are already established by Administrative Management (AM) and Research Management (RM)  
Goal is cooperation/communication  
respect for each line  
Goal is to implement policies - and to reach required performances
2. Job Standards are being redesigned  
to reflect:
  - Only Level 3 is described for "Fully Satisfactory" Performance
  - Uniqueness to the job
  - Generic standards for positions of comparable responsibility and initiative
  - Trainings sessions on Nov. 21, 1986  
Put into place in the year
3. Accounting Procedures to be converted to LOTS (Location Obligation Tracking Systems):
  - All expenses relate back to CRIS
  - Monthly status, signed off by Administrative Ladder
  - Training session for all accounting technicians
  - November 12-14, 1986
4. Emergency Requests for Funds:
  - High priority list maintained by Beltsville Area
  - Release of funds begins early in 1987
5. Status of Salary Lapse: Must be requested through HPRL process.
6. Prorate Space Charges at USNA to Unit:
  - Rationale has been proposed, to be reviewed again at a later date
7. Foreign Travel: Operates under a ceiling
  - High Priority Requests thru Ladder
  - Requests change/drop out
  - Direct requests/advanced information
8. Time and Attendance (T & A's):
  - Transmit electronically during Calendar Year 1987
  - Supervision permission
  - Sign-in books/records of attendance
  - Distribution of records should be confidential
  - Need someone of staff to discuss rules/regulations
9. Education Opportunities: Alternatives
  - Read and Writing courses
  - High school equivalent

10. Health Insurance: Open Season
  - Package of information to be distributed
  - Many changes/savings
11. Retirement Packages: New alternatives
  - Analysis of benefits
  - Alternatives presented in newspapers
12. Imprest Fund: Cashier now at BARC
  - Procedures/requirements need to be understood by USNA Staff
  - Available only for part of the day

Propose: New Clerk/typist in Adm. Unit to become certified cashier at USNA
13. Purchasing from GSA: Service being phased out
  - Procurement only by mail
  - Need bulk storage area to hold 3rd Class Mail
14. Messenger Service: Long term plan?
  - Contracting out under A-76
  - Statement of work
15. Positive Black professional: moving through ladder:
  - Recruitment procedures
  - Mix of cultures/traditions
16. Mail Room: Security/Procedures
  - Open-to-all
  - Locks on doors/desks/cabinets
17. Photocopy Machines: Responsibilities
  - Repair Calls
  - Supplies: toner/paper
18. Director's Secretary: USNA
  - Equivalent to Institute
  - Reviews letters/format
  - Aids in routing of paperwork
  - Meeting of Beltsville Area Secretaries is planned for 1987
19. Landscaping Coordination: Downtown USDA
  - Directed by USDA Operations
  - Landscape projects on contract
  - Garden of Champions: New landscape plants: plan will cost \$100,000+ in stages
  - Interior landscaping on contract
  - Requirements/Demands increasing all of the time

20. Curators at USNA: Professional status
  - Recognition in USDA structure-counted both as professionals and service staff
  - Define role of position, its support staff, and how staff develops new programs
  - Advancement beyond entry level is extremely difficult
  - Overtime for outside speeches: status needs to be defined and communicated
21. Recruiting 1040's for USNA:
  - Pool of candidates is very limited
  - Outside contacts/opportunities
22. Communications:
  - Keep all staff involved and informed of developments



FACILITIES: WHAT SHOULD WE BE DOING? USNA

1. Establish a ladder of supervision which clearly sets up the following conditions/situations:
  - Central line of supervision - only one person finally sets, checks on, and reset priorities of work
  - Unit Leaders and work group Leaders have a brief meeting at weekly intervals to aid in setting/describing priorities of work
  - Initiate a procedure to purchase and assemble supplies/equipment so that job can be scheduled and completed
  - Set a way to handle small jobs on a timely basis
  - Set a way to handle emergencies and communicate to all concerned when changes in priority have to be made
  - Communication of where work orders stand and that they are moving through the priority list and will be done
  - Start and complete jobs before moving on to other projects
  - Designate a ladder of supervision so that all will know who is in charge in the absence of the regular supervisor
2. Mutual respect for all staff as a professional in their job must be a goal for staff members at USNA
  - Better communication of leaderships and abilities of all staff
  - Distribution of jobs fairly done
  - Negative teasing/harassment is unacceptable from any party and is strongly condemned by all staff members
  - Goal: 8 hours of work each day - in a good working/cooperating environment
3. Educational opportunities should be made available on a personal or professional basis.
  - Increase basic skills of reading and writing
  - Increase on-job skills of gardening/maintenance/facilities/equipment
  - Contacts with local schools of courses/catalogs that staff can take on their own time
  - Schedule enrichment tours for staff (in off-season) to visit other facilities or have tours of new gardens/collections/research at USNA
  - Promotion potentials of Staff
4. Schedule, at a regular basis, monthly staff meetings of Facilities Unit to hear:
  - Priorities for new projects
  - RAP Session on current developments
  - Update on needs (supplies, transportation, equipment)
5. Updates on A76 (contracting out) functions/activities of USNA
  - Sequence of development
  - Current status
  - Impact on Staff in next 12 months?
6. Security of facilities of USNA
  - A warehouse with cages and locks is needed to control availability/losses of equipment/supplies of USNA

- A new system of distribution of keys and who has access to which areas must be established
- Rigid control of inventory, to which Unit the supplies are charged to, and a complete financial record is a major goal of the Facilities Unit.

7. Shops area should be upgraded once the roof is fixed in November 1986: PRIDE IN THE WORK PLACE

- Lounge area to have paint/furniture upgraded to make it an acceptable work area
- Shops areas should be thoroughly cleaned (walls, floors, windows) and proper facilities for storing supplies should be made available
- Non-operational equipment should be put on the surplus list and moved out of the shops area
- Parking lots and storage lots should be upgraded by getting all debris out of the area

8. Repair of equipment/vehicles should have a policy statement prepared

- How requests for repair are made and how routed through ladder
- Decisions on outside contractors to perform specific repair jobs
- Length of time required for repair: speed of turnaround

9. Work Groups: Safety and Security for staff

- Vehicles to move around grounds to respond to emergencies
- Individual in field needs some way to stay in touch

10. Leave Policy: Memo distributed by USNA to all staff

- Uniform handling of requests/situations
- Information accurately reflected in biweekly T & A's
- Dade/Benedict to prepare T & A's until new clerk typist is added

11. Facilities Manager: Recruitment underway

12. Telephones Communication: New pay phone in Administration Bldg.

- Answering machine to phone in shops
- Dade and Benedict to distribute emergency calls
- Emergencies:  
8:00 a.m. to 4:30 p.m.  
Desk: Kristine at 475-4815  
Use Beeper/Guards  
Before 8:00 a.m. - After 4:30 p.m. Weekends  
Contact Guards at 475-4860

13. Chuck wagon: Regular schedule of visits:  
Currently does not arrive in time for scheduled morning break.

14. Alcohol: Procedure is well established as what to do (Klassen Memo)
  - Must be considered by supervisor
  - Safety for staff member, staff, and visitor
  - Sent home immediately, put on sick leave
  - Someone should drive person home for safety
  - Encourage to contact EAP; do not drop it! Get help!
15. Awards Programs: Nominations by supervisor
  - Identify outstanding performance
  - Many different approaches are available

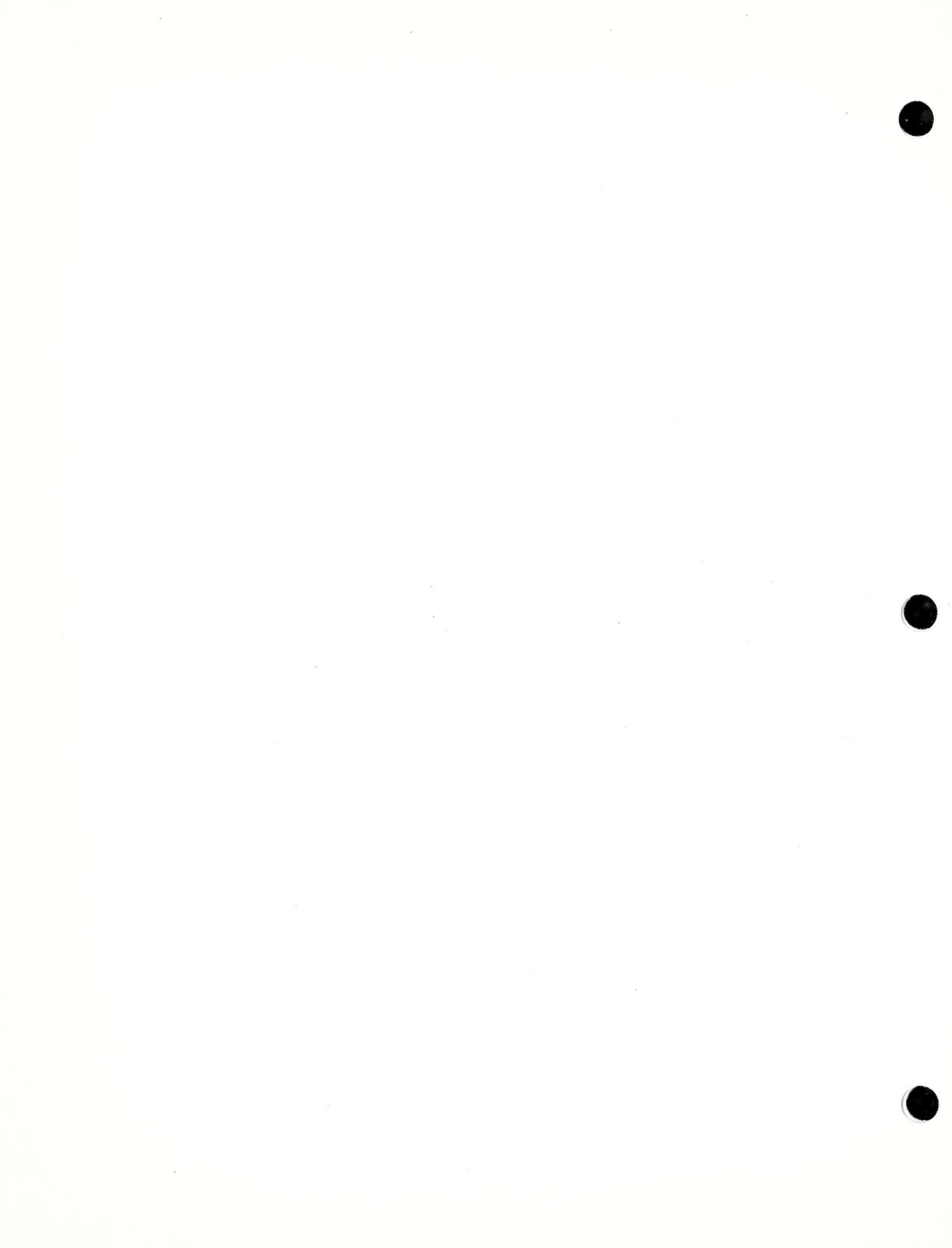


RESEARCH: What should we be doing? USNA

1. Communication between Units should be strengthened
  - Become involved in developments
  - Tours of facilities, grounds to be aware of achievements
  - Frequent meetings of Unit leaders to set priorities for mutual projects
  - Establish procedures to account for requests, how to get something accomplished
2. Become a world class facility:
  - Unique for our Nation and the world
  - National Center for Woody Plant Germplasm for the landscape Repository
  - Develop grounds to show the achievements of the Research Unit
  - Serve the world community with collections, explorations, herbarium, library, publications, educational events, and plant introduction
  - Provide facilities of food, gifts, trams system, educational events to receive visitors
  - Maintain authentically labelled plants in type collections
3. Preserve the native landscapes of the USNA for future generations as an island in one of the largest cities in the United States
  - Update O.M. Freeman's List of 40 years ago about the "Native Plants at the USNA" (Publication Number One)
  - Remove some of the old trees which may pose a safety problem and thin/clear areas to allow specially selected plants more room for development
  - Expand our collections of native plants to preserve the diversity of selected genera
4. Prepare a handbook to orient new staff members and visitors to the USNA: Include
  - Goals/objectives stated
  - History of development
  - Mission by CRIS
  - Achievements - Gardens
    - Collections
    - Introductions
    - Research
    - Education
  - Master Plan - Future Developments
  - Guide book to research, gardens, and collections
  - Copies should be sold in Arbor House
  - New staff members should have orientation tours and be introduced at Unit and USNA staff meetings

5. Facilities and procedures should be improved to handle the continuing development of the USNA
  - A warehouse, with cages and locks, should be built to store supplies/equipment safely
  - A list should be maintained at the Administration Building, Educational Office, Greenhouse, and Shops area of pending deliveries so as to direct its delivery to the proper person and Unit
  - Safe trash cans should be placed on grounds to protect against squirrels and other animals
  - Road signs should direct traffic to a clock flow to the areas for parking and suggest the best routes in and out of the Arboretum
6. Work with neighborhood associations to maintain public outreach as to proposed developments
  - "R" Street Association: fence used car lot
  - "M" Street - Maryland Avenue Area - Work with 4 schools on Hill to landscape area:
  - Each class to have a flowering crabapple as it responsibility
  - Land outside fence should be given a community treatment for care
7. Program should be expanded to recruit and train volunteers to help with the activities of the USNA
  - Training guides
  - Training technicians helpers
  - Training curator helpers
8. Expand the capabilities of the grounds of the USNA to grow and display plant introductions
  - Court of Champions/Honor with labels and folders
  - Nursery area for lining out
  - Plastic houses for propagation
  - Establish GRID system to locate plants
  - Collections policy established for every genera
  - On USNA ground, Glenn Dale, and Beltsville land
9. Publish a Directory of the Skills of the Staff of the USNA
10. Establish a transportation link between the Kenilworth Aquatic Gardens and the USNA to expand the scope of the largest preserve of natural vegetation in the Washington, D.C. area
11. Place special emphasis in displaying the extensive/most comprehensive collection of flowering cherries in the world
12. Encourage graduate students at various colleges to make the USNA a source for conducting research with our living collections and germplasm
13. Promote the availability of USNA introductions in local garden centers/nurseries to identify the significance of these "elite" new cultivars

14. Increase circulation of notices of Seminars available in USDA, BARC, and other locations in the Washington, D.C. area
15. Develop GRID system to aid in the mapping and location of plants on the grounds of the USNA
16. Utilize planning sessions among Research, Gardens and Collection and Education Units in selecting genera and areas for plant exploration. Also ensure that representatives are planted in the Woody Plant Repository.
17. Budget for Landscape Architect to be put on a contract to aid in the design and continuing maintenance of the plant displays of the USNA.
18. Review and control pollution problems on Hickey Run
19. Provide funds for adequate and suitable uniforms for both summer and winter seasons
20. Monitor the long term uses of the Langston Golf Course
21. Provide curators to coordinate the following collections: crabapple cherry, oaks, magnolia, holly
22. Staff positions to be filled: Pathology, Cytology, Stress Physiology, Entomology
23. Open up views to the grounds on Mt. Hamilton and Mt. Hickey
24. Establish the JOURNAL OF THE U.S. NATIONAL ARBORETUM
25. Provide space and facilities for visiting and retired scientists to work with the staff of the USNA
26. Modernize special equipment and utilities at the USNA
  - Mist Propagation
  - Water lines
  - Sewage lines
  - Electrical lines
27. Find classification/position descriptions to provide a professional pathway for non Ph.D.'s - curators and support scientists
28. Put hybrid germplasm into system even if it is not a cultivar - preserve/document/make herbarium deposit



EDUCATION: WHAT SHOULD WE BE DOING? USNA

1. Produce additional stories/TV/Radio about the programs/products of the USNA
2. Plan events at least 4 to 6 months in advance to have them placed in the various media outlets
3. Utilize blanket order to have metal photo labels prepared of the major gardens and collections
4. Review responsibilities and costs of having events scheduled at the USNA during off hours
5. Analyze the cost/benefits of various ways letting public know what is going on at the USNA
6. Coordinate information concerning courses that would be of interest for staff members to take on professional or private time
7. Provide a two-way communication system at USNA for key staff members and the Guards: all on same frequency and equipment
8. Schedule a PRESS DAY at the USNA to brief the media of current and future developments/programs
9. Announce on radio (AM 1050-WNTR) the coming events of interest to gardeners at the USNA
10. Maintain contact with National Council of State Garden Clubs Federation of Garden Clubs, Inc., (National Capitol Area) as to their plans for Arbor House, Events, Volunteer Guides, and Special projects
11. Develop a logical method for staff to cooperate with the Friends of the National Arboretum
12. Revamp supplies and equipment for catering events at the USNA
13. Install a new kitchen outside Auditorium with locked storage space
14. Purchase new furniture for the terrace outside the basement lunchroom
15. Purchase a 45" COLOR TV AND VCR to show videos at the USNA  
- Transfer tapes and 16 mm film to the desired tape size and use
16. Purchase an outdoor shell to place on grounds for an all-weather shelter
17. Upgrade machine which addresses mailing list into state and ZIP code regions.

18. Organize a CLEAN DAY at the USNA - in offices, laboratories, greenhouses, basements, and in the brickyard
19. Review sanitary conditions of public toilets on the grounds
20. Arrange a planning session to handle peak visitation in 1987. Include Facilities, Education, and Garden and Collections Units.
21. Encourage involvement in neighborhoods - "R Street and M Street" in working on common goals of upgrading landscaping, jointly sponsored by USNA and neighborhoods
22. Arrange suitable events to honor the Sixtieth Birthday of the USNA:  
1987  
- Develop an exhibit to celebrate the Sixtieth Birthday of the USNA

EDUCATION: WHAT SHOULD WE BE DOING?

SPECIFIC PROJECTS/NEEDS

1. Upgrade the facilities for the receptionist in the Administration Building
  - Center of reception/hospitality/information at USNA
  - Needs Directory of SKILLS/CONTACTS/ORGANIZATIONS to answer inquiries
  - Emergency aid for visitors training in First Aid/CPR
  - Two-way radio system with staff and guards at the same frequency
  - Telephone system to receive calls and to answer calls in off hours

Equipment/Design needed:

- Renovate desk to provide work and storage space
- Install word processor to handle the variety of typing requests
- Answering machine to process calls
- Locked space for safe storage
- New lighting in area for reading
- Heating pad/radiant surface to cut impact of drafts
- Handle cables on floor for safety

2. Upgrade the facilities of the Auditorium
  - Dollies for the movement
  - Dimmer control in project booth for controlling lighting in Auditorium
  - Large motorized screen
  - Lighting for stage
  - Overhead projector
  - Video Equipment
  - Vehicle to move equipment on grounds
  - New Auditorium Chairs
3. Upgrade the facilities of the Classroom
  - Carpet on floor
  - Paint on walls
  - Soundproof walls and hallway outside room
  - Doors that do not slam
4. Upgrade the facilities of the Library
  - Additional staff person to handle routine operations
  - Budget for books - \$3500
  - Budget needed for
    - . binding \$3000
    - . journals \$3000
  - Reader for microfiche in Herbarium
  - Another room for vertical files
  - New table and bookshelves for terminal and keyboard
  - Dialog: On line data use TELEX system - hooked up to mainframe
  - Upgrade rug, chairs (20) and tables

Find for Library:

- Volunteers to work in area always under supervision
- Alternative place for people to eat lunch
- Additional help beyond 16 hours per week

Requests from the Library:

- What do you want them to do to help your program/research?
- Plant Sources - in catalogs or Rare Books at NAL?
- Utilize correspondence aids already created by staff of USNA?  
    Update lists/addresses?
- Orientation tour as how to utilize facilities/resources?

5. Upgrade the facilities of the Activity Building

- Containers to block parking on Drive
- New surface on pull-by and entrance on toilets
- New storm door on building with screen
- Lighting in hallway for hospitality
- Bell on front door for safety
- Remove upper kitchen, convert to storage
- Install new entrance to Basement through Emergency Exit
- Paint Interior of building
- Insulate Attic
- Upgrade fuse box to handle increased electrical load
- New signs on Building and in NEW AMERICAN GARDEN
- Finish back terrace and walks with bricks (one month project)
- Install awning in front of Gift Shop window
- Repaint walls on the exterior of the building
- Install storm windows on building
- Review and improve the handling of sewage from the building
- Install exterior lighting for safe use at night
- Remove varied types of signs on building: NEW SIGNS FOR:
  - INFORMATION/EDUCATION
  - ARBOR HOUSE
  - CLASSROOM
  - TOUR ORIENTATION
  - TOILETS
  - NEW AMERICAN GARDEN (100 SPECIES ON DISPLAY)
- Access for Handicapped
- Half Door in Office of Secretary to handle traffic, protect individual, and restrict access to the rest of the building

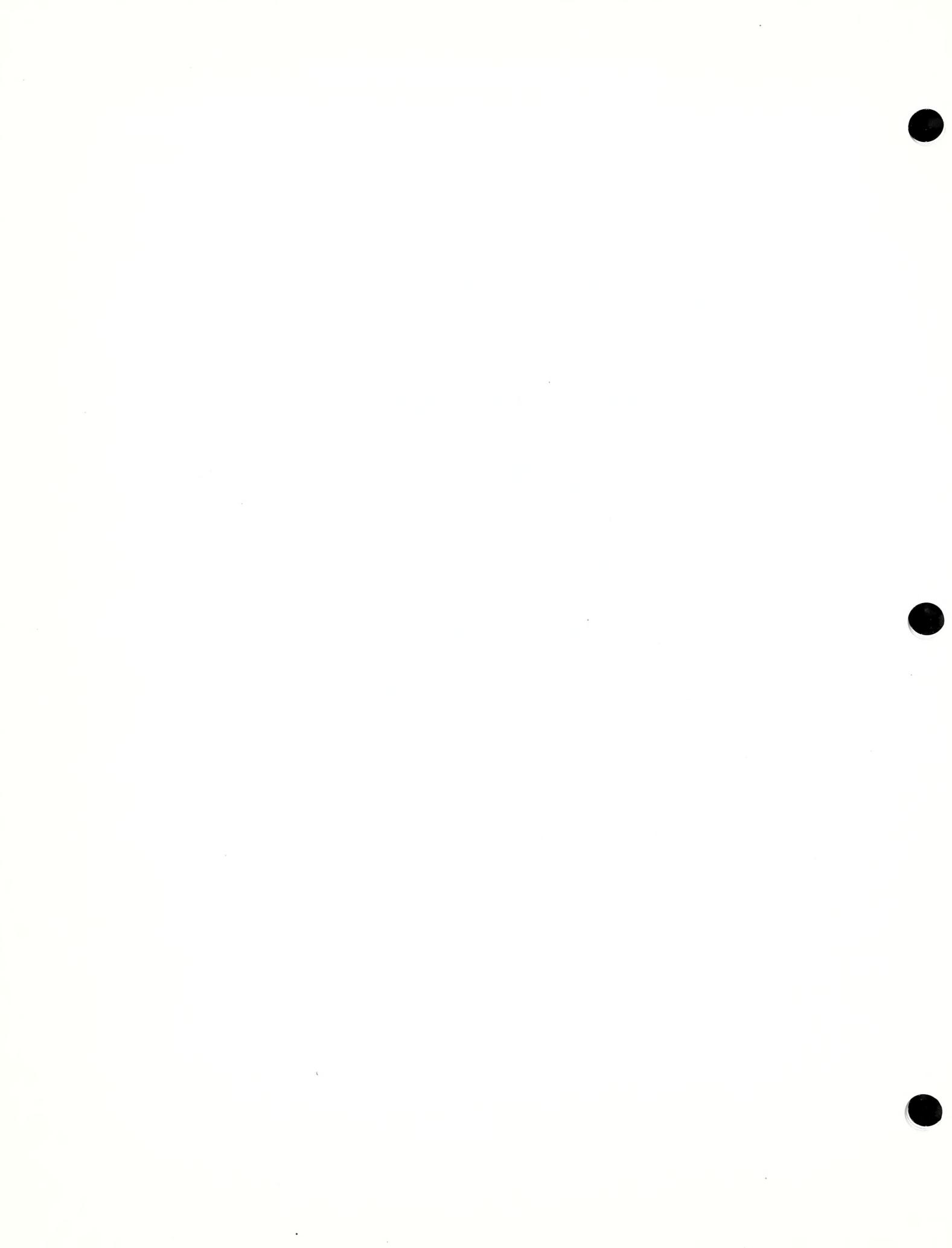
The United States National Arboretum

Chartered by Act of Congress March 4, 1927, to establish and maintain a national arboretum for purposes of research and education concerning tree and plant life.

It shall be so correlated with the Department of Agriculture to bring about the most effective utilization of its facilities and discoveries.

Purposes:

- (a) to establish, develop, and maintain for the benefit of the people of the United States a scientific and educational center in the form of a temperate arboretum together with such facilities as a library, herbarium, laboratories, and support facilities which are appropriate and necessary for encouraging and conducting research in basic and applied plant life sciences;
- (b) to foster and encourage fundamental research in respect to trees, shrubs, and ground covers and the study of their uses in the landscape;
- (c) to collect, cultivate, and display the world flora of landscape plants of every nature and origin and to preserve for the people of the United States species in a woody plant repository for future generations;
- (d) to disseminate through events, publications, radio, television and other media the knowledge acquired at the arboretum relative to basic and applied plant life sciences;
- (e) to create an outdoor museum in Washington, D.C., which will contribute to the education, instruction, and inspiration of the people of the United States;
- (f) to provide the setting and scholarship to present historic artifacts, sculpture, plants, and to present them in designs by truly outstanding landscape architects;
- (g) to encourage and involve national, regional, and local organizations in the joint planning, design, and implementation of the Master Plan of the U.S. National Arboretum through the overall recommendations of the Advisory Council, appointed by the Secretary of Agriculture, and the technical and scientific supervision of the Agricultural Research Service, U.S. Department of Agriculture.



ACCESSION: 0141376 YR 86 PUB PG 1 MODE: 1230-05-00 CWU: 1230-20030-005-00

TITLE: EVALUATION, PRESERVATION AND GENETIC ENHANCEMENT  
OF LANDSCAPE TREE GERMPLASM

PERIOD COVERED FROM 01/86 THRU 12/86

APPROVED: H. M. CATHEY

12/86

POSITION TITLE: Director, USNA

#### PROGRESS REPORT

Trees of mimosa (*Albizia*) originally selected for resistance to Fusarium wilt in the 1940's have succumbed to the disease in recent years, most likely because of synergistic effects of root-knot nematode infestation and wilt infection. Screening of 6000 progeny from crosses among wilt-resistant parents resulted in the selection of 78 plants resistant to the nematodes-wilt combination. Studies of greenash (*Fraxinus pennsylvanica*) from throughout the species' range indicated that natural resistance to ash and lilac borers was extremely rare or non-existent. On the other hand, damage by the European hornet to green ash and birch (*Betula*) trees did vary with their geographic origin. Elm leaf beetles fed on acid-rain-treated foliage laid fewer eggs than normal. Hybrids between *Ulmus wilsoniana* (resistant) and species susceptible to elm leaf beetle were intermediate in resistance. Testing for resistance to *Verticillium* wilt resistance in maples has given erratic results in field test and under greenhouse conditions. New tests of plants under controlled conditions in growth chambers gave significantly better results and may make mass screening possible.

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( 1 )

MCARDLE, A.J. and SANTAMOUR, F.S., JR. 1986. Screening mimosa seedlings for resistance to nematodes and Fusarium wilt. *Pl. Disease.* 70:248-251.

( 2 )

SANTAMOUR, F.S., JR., MCARDLE, A.J. and JAYNES, R.A. 1986. Cambial isoperoxidase patterns in *Castanea*. *J. Environ. Hort.* 4:14-16.

( 3 )

SANTAMOUR, F.S., JR. and STEINER, K.C. 1986. Borer damage in green ash trees from different provenances. *J. Arboric.* 12:199-201.

( 4 )

SANTAMOUR, F.S., JR. 1986. Wound compartmentalization in tree cultivars: Addendum. *J. Arboric.* 12:227-228.

( 5 )

DOMIR, S.C. and TOWNSEND, A.M. 1986. Response of American sycamore seedlings to maleic hydrazide and sodium chloride. *Pestic. Sci.* 17:230-234.

ACCESSION: 0141376 YR 86 PUB PG 2 MODE: 1230-05-00 CWU: 1230-20030-005-00

TITLE: EVALUATION, PRESERVATION AND GENETIC ENHANCEMENT  
OF LANDSCAPE TREE GERMPLASM

PERIOD COVERED FROM 01/86 THRU 12/86

APPROVED: H. M. CATHEY 12/86

POSITION TITLE: Director, USNA

#### PUBLICATIONS

( 6 )

ROBERTS, B.R., DOCHINGER, L.S. and TOWNSEND, A.M. 1986. Effects of atmospheric deposition on sulfur and nitrogen content of four urban tree species. *J. Arboric.* 12:209-212.

( 7 )

SCHUBERT, O.E., CREAGER, A.E., FRANK, J.R., SCHUBERT, G.E. and EISENBEISS, G.K. 1986. A compendium of chemical weed control research on ornamentals in the United States (1944-1984). *HortScience*. 21(2)Suppl. p. 1-137.

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SANTAMOUR, F.S., JR. and GREENE, A. 1986. European hornet damage to ash and birch trees. *J. Arboric.* 12:273-279.

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EISENBEISS, G.K. 1986. Holly arboreta reports - 1985. *J. Holly Soc. Amer.* 4(1):37-38.

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EISENBEISS, G.K. 1986. Holly registrations since 1975. *J. Holly Soc. Amer.* 4(1):9-15.

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EISENBEISS, G.K. and DUDLEY, T.R. 1986. International registration - 1985. *J. Holly Soc. Amer.* 4(1):9.

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EISENBEISS, G.K. and DUDLEY, T.R. 1986. International holly checklist - 1985. *J. Holly Soc. Amer.* 4(1):9.

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EISENBEISS, G.K. and DUDLEY, T.R. 1986. Obituary: William F. Kosar. *J. Holly Soc. Amer.* 4(2):4.

(15)

TOWNSEND, A.M. 1986. Recent elm research and new choices of urban tree species. *Proc. Soc. Municip. Arb.* 19:7-14.

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BARBER, J.H., HALL, R.W. and TOWNSEND, A.M. 1986. Effects of atmospheric deposition on suitability of elm for elm leaf beetle. *Proc. Entom. Soc. Amer.*, North Central Branch. 41:43(Abst.).

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ACCESSION: 0049954 YR 86 PUB PG 1 MODE: 1230-05-00 CWU: 1230-20030-006-00

TITLE: GERMPLASM EVALUATION AND GENETICS  
OF LANDSCAPE SHRUBS

PERIOD COVERED FROM 01/86 THRU 12/86

APPROVED: H. M. CATHEY 12/86

POSITION TITLE: Director, USNA

#### PROGRESS REPORT

24 seedling selections from the shrub breeding program have been designated cultivars with 16 scheduled for release and the following 8 introduced: *Hibiscus syriacus* 'Minerva', NAS4984, PI499812, is a triploid with compact growth habit; heavy-textured dark green leaves that tolerate atmospheric pollution and light frost, sterility, and profuse continuous, lavender bloom for at least 4 months. In 14 years the plant has grown 2.6m high and 2.1m wide. *Lagerstroemia* (*indica* x *fauriei*) 'Acoma', NA48472, PI499815; 'Hopi', NAS2711, PI499816; 'Pecos', NAS4977, PI499823; and 'Zuni', NAS4982, PI499827, are first semi-dwarf cultivars that combine mildew resistance, increased stress tolerance and a range of flower colors. For the first 8-10 years, the plant growth habit will be a low spreading mound under 2m but with maturity, the height will remain under 3m with pronounced trunk bark coloration and horizontal branches. The flower colors are white, light pink, medium pink, and medium lavender, respectively. *Lagerstroemia* (*indica* x *fauriei*) 'Tuskegee', NA48471, PI499814, is a multiple-stemmed small tree that has grown 4.4m high and 5.5m wide in 17 yrs. The plant has mildew resistance, greater cold stress tolerance and intense dark pink to near red flower color. *Malus* x 'Naragansett', NAS4938, PI499829, combines multiple disease resistance to mildew, fire blight, apple scab and cedar apple rust; red buds opening to white bloom; and pendulous bright red fruit that remain brilliant until heavy freezing of Dec. Growth 4m high x 3m wide in 12 years.

#### PUBLICATIONS

( 1 )

EGOLF, D.R. 1986. 'Shoshoni' Viburnum.  
*HortScience*. 21:1077-1078.

( 2 )

EGOLF, D.R. 1986. 'Tuskegee' Lagerstroemia.  
*HortScience*. 21:1078-1080.

( 3 )

EGOLF, D.R. 1986. 'Acoma', 'Hopi', 'Pecos', and 'Zuni' Lagerstroemia.  
*HortScience*. 21:1250-1252.

( 4 )

EGOLF, D.R. 1986. 'Minerva' Rose of Sharon (Althea).  
*HortScience*. 21:1463-1464.

( 5 )

EGOLF, D.R. 1986. 'Naragansett' Crabapple.  
*HortScience*. 21:1462-1463.

ACCESSION: 0049954 YR 86 PUB PG 2 MODE: 1230-05-00 CWU: 1230-20030-006-00

TITLE: GERMPLASM EVALUATION AND GENETICS  
OF LANDSCAPE SHRUBS

PERIOD COVERED FROM 01/86 THRU 12/86

APPROVED: H. M. CATHEY 12/86

POSITION TITLE: Director, USNA

PUBLICATIONS

( 6)

EGOLF, D.R. 1986. National Arboretum Introduces Dwarf Viburnum.  
Balls and Burlaps. 38:7.

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ACCESSION: 0141192 YR 86 PUB PG 1 MODE: 1230-15-00 CWU: 1230-20160-003-00

TITLE: TAXONOMY AND NOMENCLATURE OF CULTIVATED PLANTS

PERIOD COVERED FROM 01/86 THRU 12/86

APPROVED: H. M. CATHEY 12/86

POSITION TITLE: Director, USNA

#### PROGRESS REPORT

Completed booklength interpretative commentary on the History of Plants by Leonhart Fuchs published in 1542 as the first scientific treatise on a botanical subject of value to botanists, the history of science and medicine. Determined that names *Magnolia denudata* and *M. liliiflora* are valid for 2 well-known landscape plants and that the Buchoz figures are incorrect and inapplicable and the names *Magnolia heptapeta* and *M. quinquepetala* must be rejected. Determined that *Aesculus flava* Solander (1784) is oldest valid name of the southern buckeye of SE US. Identified for publication 26 grains, nuts, seeds, fruits from sites destroyed by the eruption of Mt. Vesuvius in 79 AD. Identified 700 new collections; continued preparation of checklist related to southeastern US woody landscape plants project. Published 13 new registered woody cultivars and "The Story of Hollies: Diversity and History," especially current or potential landscape species; utility to systematists, nurserymen & consumers. Preliminary report of 1985 National Arboretum Korea trip describes itinerary, floristics and selected germplasm significant to systematists and plant explorers. Published new species of nickel-hyperaccumulating taxa, *Alyssum*, from Portugal & Spain. Editor of Serpentine Deposits of the World and Their Associated Flora by R. R. Brooks, bench marks significant to systematists, ecologists, geographers, chemists & metallurgists. Editor of Commemorative Reprint Edition of A. Rehder's Manual of Cultivated Trees and Shrubs; significant to all interested in woody plants.

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( 1 )

DUDLEY, T.R. 1986. 1985 National Arboretum Plant Exploration in the Republic of Korea. Preliminary Report. Jour. Holly Soc. Amer. 4(1):19-25.

( 2 )

DUDLEY, T.R. 1986. A New Nickelophilous Species of *Alyssum* (Cruciferae) from Portugal: *Alyssum pintodasilvae* Dudley, T.R. sp. nov. Feddes Report. 97(3-4):125-138.

( 3 )

DUDLEY, T.R. 1986. A Nickel Hyperaccumulating Species of *Alyssum* (Cruciferae) from Spain: *Alyssum malacitanum* (Rivas Goday) T.R. Dudley, comb. & stat. nov. Feddes Report. 97(3-4):139-142.

( 4 )

DUDLEY, T.R. 1986. International Registration of Cultivar Names for Unassigned Woody Genera 1984. Bull. Amer. Assoc. Bot. Gd. & Arb. 19(2):86-96.

( 5 )

DUDLEY, T.R. 1986. *Viburnum cotinifolium* D. Don and two Infraspecific Taxa. Feddes Report. 97(3-4):129-133.

ACCESSION: 0141192 YR 86 PUB PG 2 MODE: 1230-15-00 CWU: 1230-20160-003-00

TITLE: TAXONOMY AND NOMENCLATURE OF CULTIVATED PLANTS

PERIOD COVERED FROM 01/86 THRU 12/86

APPROVED: H. M. CATHEY 12/86

POSITION TITLE: Director, USNA

PUBLICATIONS

( 6 )

DUDLEY, T.R. 1986. (Editor and author of The Foreward). Manual of Cultivated Trees and Shrubs by A. Rehder. Dioscorides Press, 1030pp.

( 7 )

MAZZEO, P.M. 1986. Trees of Shenandoah National Park. Second Edition. (with corrections).

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ACCESSION: 0140834 YR 86 PUB PG 1 MODE: 1230-15-00 CWU: 1230-20030-007-00

TITLE: COLLECTION, DOCUMENTATION, EVALUATION & EXCHANGE  
OF WOODY & HERBACEOUS GERMPLASM

PERIOD COVERED FROM 01/86 THRU 12/86

APPROVED: A. M. TOWNSEND 12/86

POSITION TITLE: Acting Director, USNA

#### PROGRESS REPORT

Asian Collections: expanded Chinese, Japanese and Korean pltgs. with documented germplasm from plt. explor.; cold hardiness eval. of *Camellia japonica* sdlys. from wild sites off North Korea coast. Fern Valley/Ivy Daffodil Collections: increased native plt. collections by 150 spec.; added 25 cvs. to daffodil collection; through outside funds, estb. Lahr Fellowship. National Bonsai Collection: donation by Mr Yee-sun Wu, Hong Kong, of 31 Artistic Pot Plants (Peking). Gotelli Conifer Collection: contd. renv.; 31 conifer, 20 grass accessions added. Azalea-Rhododendron Collection: compl. renv. of Lee Garden featuring 192 Satsuki Azalea cvs.; cont. renv. of azalea loop by estb. Hirado, Kurume, Linwood, Robin Hill, and Back Acre Azalea areas with 300 cvs.; eval. of *Rhododendron mucronulatum* sdlys. for flower color, habit, autumn lf. color from broad range of wild Korean germplasm. Boxwood/Perennial Collection: began the New American Garden featuring perennials and ornamental grasses. National Herb Garden: created test site to eval. 36 maritime herb spec.; verified using current taxonomic literature 100 spec. of *Artemisia*, *Lavandula*, *Rosmarinus*, *Mentha*, *Thymus*, and *Origanum*; inst. in specialty gdns. auto. irrigation sys. with outside funds. Plant Records: proc. 2000 plt. accessions; pur. Telex PC for plt. data mgt; restructured for incr. efficiency label making process. General: part. Wash. D.C. Flower Show with feature gdns., 60,000 visitors, outside funds; *Lespedeza thunbergii* entry Styer Award recd. preliminary commendation.

#### PUBLICATIONS

( 1 )

BATDORF, L.R. 1986. Twenty-five Year 'Index'.  
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ACCESSION: 0140834 YR 86 PUB PG 2 MODE: 1230-15-00 CWU: 1230-20030-007-00

TITLE: COLLECTION, DOCUMENTATION, EVALUATION & EXCHANGE  
OF WOODY & HERBACEOUS GERMPLASM

PERIOD COVERED FROM 01/86 THRU 12/86

APPROVED: A. N. TOWNSEND 12/86

POSITION TITLE: Acting Director, USNA

PUBLICATIONS

( 6)

SHIMIZU, H.H. 1986. Modern Roses: A History.  
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YINGER, B.R. 1986. Koten Engei: Classical Plant Cultivation in Japan.  
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BURRELL, C.C. 1986. Fern Valley: A Wildflower Resource.  
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American Nurseryman. October 1, p136.

## EDUCATION/PUBLIC SERVICES UNIT 1986 ANNUAL REPORT

The Education/Public Services Unit functions as an independent management unit and is staffed by the following individuals:

Erik A. Neumann - Supervisory Public Affairs Specialist  
Mary Ann Jarvis - Information Assistant  
Louis Williams - Motion Picture Projectionist  
Deborah Creel - Clerk Typist  
Christine Hambach - Clerk Typist (Receptionist)

The Education/Public Services Unit continues to provide service and interaction with the general public, nurserymen, horticulturists, botanists, teachers, students, garden clubs, growers, landscape architects, naturalists, governmental and planning officials, and visitors of all kinds, both foreign and domestic with respect to plants and their diversified uses through the medium of demonstrations, exhibits, conducted tours, classes and workshops, conferences, and symposiums, public lectures, film showings, publications, program aids, press releases, and press interviews, radio and television.

The Education/Public Services Unit continues to disseminate the findings of research conducted at the Arboretum to the general public and the scientific community both in this country and abroad and provides an outreach to the millions of people who live in, or visit our Nation's Capital.

Demands on the Education/Public Services Unit continue to increase dramatically with the rapid escalation of visitors and number of public inquiries. During peak periods of April and May the receptionist has a great deal of difficulty in handling the masses of walk in visitors along with a busy switchboard and with message taking where staff members are often out their offices. This necessitates either the visitor or telephone caller often having to wait for unduly long periods of time for the attention of the receptionist. A 700 hour Employee from mid-March to mid-June would be of tremendous help.

Guided tours now number over 300 annually necessitating a greater effort at recruitment of volunteer guides and increased emphasis on training. Additional volunteers have been recruited for the Library, Gardens and Collections Unit, Research Unit and as weekend volunteers to assist a paid employee at the lobby switchboard. Much of the success in obtaining volunteers has been through the inclusion of requests in the Arboretum monthly events flyer. This publication has now been expanded to a four page format.

The Education/Public Services Unit is now bearing much of the cost of both in-house publication of Correspondence Aids, Living Legend handouts, and other items for public distribution. In addition the unit is responsible for the cost of publishing program aids and an Arboretum poster which will, in the near future, be necessary to reprint. Without additional funds some of the printing will have to be delayed until the next fiscal year. Program Aid 309, The United States National Arboretum was reprinted in 1986 in sufficient quantity for what we thought would be a two year supply. We are now already

almost out of this publication which contains a map and basic information on the Arboretum. Due to lack of funds this cannot be reprinted until next fiscal year. This will again necessitate xeroxing copies when the supply is exhausted.

Three Program Aids were revised and reprinted this year. In addition to PA 309, The United States National Arboretum, Program Aid 1159 The Gotelli Dwarf Conifer Collection at the National Arboretum and Program Aid 1379, Fern Valley Trail Guide have been reprinted or are in process of printing. The program aids in the azalea collection, The National Herb Garden and on the National Bonsai Collection are all in need of reprinting. Additional Program Aids need to be written for other collections.

There are no funds specifically set aside for the Arboretum Library for some items, and the cost is also often assumed by the Education/Public Services Unit. Library chairs are in extremely poor condition and should be replaced as should the carpeting. No funds are set aside for binding of books.

Additional lighting is needed for the Auditorium and exhibit equipment is also needed.

#### Publications

Neumann, Erik A. 1986. Washington's Hidden Treasure - The U.S. National Arboretum, Bicentenary of Indian Botanic Garden. "Network of Botanic Gardens". A Commemorative Volume, Botanic Garden. Caluctta, India. 1986.

Neumann, Erik A. 1987. Azalea Fever Causes Arboretum to Open It's Gates. FONA News. April 1987

Neumann, Erik A. 1986. The U.S. National Arboretum. Prosperity Magazine. February 1986.

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## EDUCATION, PUBLIC SERVICES, AND LIBRARY

### A. The Education and Public Services Unit

The Education and Public Services Unit functions as an independent management unit and is staffed by the following individuals:

Erik A. Neumann, Supervisory Public Relations Specialist, Head,  
Education and Public Services Unit.  
Mary Ann Jarvis, Information Assistant (Program Coordinator)  
Deborah Creel, Clerk-Typist  
Christine Hambach, Clerk-Typist (Receptionist)  
Louis Williams, Projectionist (Exhibits, Photography, Facilities,  
Set-ups).

The Education Unit develops its own budget and is responsible for management, personnel actions, training, annual CRIS Reports, an Advisory Council Report as well as development and implementation of its education and public relations programs.

B. Response to Public Inquiries. The Education Office answered 46,200 requests for information including questions about plant problems, directions, hours, arboretum classes, horticultural events, and Arboretum plants and collections.

Many of the inquiries are handled by the Administration Building Receptionist, Christine Hambach, or by Debbie Creel in the Activities/Information Building. Many questions including routine horticultural questions and more complex problems concerning indoor plants are handled by the Information Assistant, Mary Ann Jarvis. Complex and other than routine questions are referred to Erik Neumann, Head of the Arboretum Education and Public Services Unit. Others are referred to the National Arboretum Librarian (Technical Information Specialist) and to curators or staff members. Telephone calls account for the vast majority of the inquiries with the rest divided between walk in visitors and written inquiries.

Debbie Creel, Clerk-Typist searches the Arboretum Library and the AGRICOLA Database in order to provide information for use by the Head of the Education and Public Services Unit and Program Coordinator in answering more complex horticultural questions or problems.

Referrals from the area Cooperative Extension Services continues to account for many of the inquiries. This is due in part by the limited hours of some of the Extension offices and by Master Gardeners handling many inquiries. They have considerably less training than permanent staff members of the Extension Service.

C. Arboretum Switchboard/Base Radio. Incoming phone calls, referral of inquiries and operation of the Arboretum base radio for communication with the Security service and outdoor facilities and gardens and collections employees is handled by Christine Hambach, Receptionist. Having radio contact with the Security staff now works well with all radios on the same frequency. This contact is essential for effective communication especially during emergency situations.

D. Volunteer Guide Service. Thirty-five Arboretum Volunteer Guides and eight student guides conducted 256 tours of the National Arboretum during the past year. School groups and garden clubs accounted for nearly one-half of the above tours with the balance consisting of senior citizens, junior garden clubs, county extension tours, diplomatic wives, garden editors, college groups, miscellaneous professional groups, and others.

While the Volunteer Guide Service originally operated under a cooperative agreement with the National Capital Area Federation of Garden Clubs, Inc., we are presently recruiting most of our new guides through requests for volunteers placed in our monthly Events Newsletter of which over 5,000 copies are distributed with each issue.

Mary Ann Jarvis matches each tour group requesting a tour with an appropriate volunteer. The National Capital Area Federation of Garden Clubs, Inc. is represented by Mrs. R.E. Whitney as their liaison who assists with the training sessions. Intensive Volunteer Guide training sessions, coordinated by Mrs. Jarvis are held annually with each volunteer undergoing approximately sixty hours of training, including lectures, films, and tours of National Arboretum gardens and collections. These sessions are taught by Mr. Neumann and other Arboretum staff members.

A special training session was held in late April for prospective volunteers in the National Country Garden.

As a part of the Volunteer training program, a series of one hundred facts about the Arboretum's history, gardens and collections, and research programs was developed by Mrs. Jarvis from questions and facts submitted by the Arboretum staff. This self examination was given to newly trained guides at the completion of their training sessions. Due to its success with new volunteers, the examination is now being given to established guides as a refresher, updating their knowledge of facts about the research and education programs and gardens and collections at the Arboretum.

Volunteer guides were honored at a coffee in April commemorating National Volunteer Week and a holiday lunch was also held in appreciation of their efforts on behalf of the Arboretum.

It is interesting to note that nearly forty tours were cancelled last year because of fears of terrorist activities. Due to incidents in Europe, tour groups cancelled citing fear of reprisals in Washington, D.C.

E. VIP Tours. In addition to the tours handled by the Volunteer Guide Service, additional VIP tours were conducted by the Head of the Education and Public Services Unit.

Of particular note are tours given to the following groups:

American Nursery Association Executives  
The Ambassador to the United States from Mexico and party including  
Wife of Minister of National Defense of Mexico.  
Wife of Chairman of Chief Military Command and party including wife of  
Chairman of Joint Chief of Staff.

Mrs. John Matlock, Royal Horticulture Society, London, England.  
Mrs. Billard, Wife of Chief of Staff, French Army.  
Sandhills Community College - Horticulture Students  
Director of Jardin Botanico Do Rio Janiero, Dr. Geraldo Jordao Pereiro.  
Chicago Botanic Garden Horticulture Staff.  
Japanese delegation from study tour for International Flower Show,  
Osaka, Japan.  
City of Baltimore Arborists  
Delegation - Danish Research Service for Plant and Soil Science -  
Research Center for Horticulture  
Summer Interns - USDA - Dr. Bentley's office  
Green Bay Botanical Gardens - Board of Directors, Wisconsin  
Reeve Reeves Arboretum - New Jersey  
Ohio State Landscape Architecture Students  
Office of Information - USDA, News Division  
Beltsville Explorer Scout Post 1810  
Delegation, National Committee on United States-China Services, Inc.  
The XI Annual Beltsville Symposium In Agricultural Research, Tour  
Employee Services Staff, ARS, Beltsville  
Prime Minister of Jamaica and Party

F. Volunteers. An intensive effort has been made to recruit volunteers as guides and for volunteer assistance to the Research Unit and the Gardens and Collections Unit. Several volunteers have been recruited to assist the Education/Public Services Unit at the Administration Building Reception Desk during busy times of the year. They work along with a paid Arboretum employee. Mr. Neumann includes calls for volunteers on a regular basis through written notices in the monthly National Arboretum Events letter as well as notices which appear in the Friends of the National Arboretum Newsletter.

Responses to calls for volunteers are handled by Mary Ann Jarvis who matches the volunteer with their specific interest and coordinates their placement with the proper staff member or Curator. Twelve to fifteen new volunteers have been recruited this year.

G. Room and Facility Use. Room and Facility use is coordinated by Mrs. Jarvis of the unit and usage continues to increase yearly. Coordination with Facilities Unit (Security Service) and Gardens and Collections is also handled by Mrs. Jarvis. Facility and room use this year totals 730 divided between the auditorium, conference room, classroom, and Activities Room. A review of organizations using our facilities needs to be done periodically as facility use is currently much above what is easily handled due to both limited staff assistance in set-up of rooms to suit organizations, and the small number of rooms which are available for use.

H. Botanical Art Displays. Art displays are scheduled on a 6-8 week format, thus saving staff time in scheduling, hanging, packaging, and shipping of the exhibits. Thirteen art displays of a botanical or horticultural nature representing a variety of media and subject matter were exhibited on the lobby walls and in a museum case in the Administration Building during the past year. The lobby displays are selected and coordinated by Mary Ann Jarvis of the Education/Public Services Unit. Mr. Williams provides assistance in hanging exhibits.

Art Exhibits 1986

"Wildflowers" by Barbara Stewart  
"A Biblical Garden: Plants of the Old Testament" by Carol Lerner  
"Surfaces in Textured Detail" by Alice Yeager  
"Summer Color" by Wuanita Wine  
"Water Sculpture" by Shigeko Sato  
"Louis B. Sloane & Roz Smith Taylor "Mentor and Artist"  
"Floral Reflections, Designs with Pressed Flowers" by Siham Eldadah  
"Flora of Andulusia: Illustrations in Ink" by Elizabeth Edgerton Cullen  
"Orchid Portraits" by Margo Brinton  
"Bicentennial State Flower Portraits" by Jeanne Holgate  
"Expressions in Movement and Color" by Eduardo Gyles  
"Romantic Paintings" by Julie Ronning Talbot  
"An Eye on the Flower" by Beryl S. McDonough

I. Arboretum Exhibits. The National Arboretum has prepared and assembled the following special exhibits for display at various shows, meetings, or special functions:

Hatch Act Centennial - Administration Building, U.S. Department of Agriculture  
D.C. Flower Show (Educational Display of New Arboretum Cultivars)  
Beltsville Agricultural Research Center Symposium, Beltsville, MD  
Perennial Garden Club - Arboretum Display of Gardens and Collections -  
Sibley Hospital  
Takoma Horticulture Flower Show, Takoma Park, MD - Exhibit of Evergreens  
Earth Day Exhibit - Photographic Exhibit of U.S. National Arboretum  
Educational Exhibit of Plant Materials - Kendall School, Galudette University  
Spring Openhouse, American Horticulture Society - Display featuring Arboretum Gardens and Plant Collections

Numerous additional exhibits are now in preparation for future scheduled display including an exhibit for the Higashiyama Botanical Garden, Nagoya, Japan. The educational exhibits are designed by Mr. Neumann with Mr. Williams being responsible for assembly and installation. Photographs for the exhibits are taken by Mr. Neumann and Mr. Williams.

J. Popular Publications. Program Aid 309, The United States National Arboretum, Program Aid 1379, Fern Valley Trail Guide and Program Aid 1159, The Gotelli Dwarf Conifer Collection at the U.S. National Arboretum were revised and received new artwork. These are written or rewritten by Mr. Neumann with input from curators or appropriate staff members or plant society specialists.

Increased visitation is necessitating printing of these brochures in larger numbers, and the cost is now borne by the Education/Public Services Unit budget. A review of publications needs to be made to determine whether all of them can still be printed due to increased costs. Written requests to the ARS Publications Committee and the justification for publication of these pamphlets is written and submitted by Mr. Neumann.

Inventory of Publications. Program Aids and Poster

PA 309 The United States National Arboretum

In stock on 1/1/86 - 64,600

In stock on 5/1/87 - 16,000

Used during period - 48,600

PA 1158 The National Bonsai Collection

In stock on 1/1/86 - 97,600

In stock on 5/1/87 - 41,600

Used during period - 56,000

PA 1261 The National Herb Garden

In stock on 1/1/86 - 50,000

In stock on 5/1/87 - 30,000

Used during period - 20,000

PA 491 Azaleas and Rhododendrons

In stock on 1/1/86 - 48,000

In stock on 5/1/87 - 27,000

Used during period - 21,000

PA 1159 The Gotelli Dwarf Conifer Collection

In stock on 1/1/86 - 5,200

In stock on 5/1/87 - 0

Used during period - 5,200 + zerox copies

PA 1375 The Fern Valley Trail Guide

In stock on 1/1/86 - 48,980

In stock on 5/1/87 - 38,520

Used during period - 10,460

Arboretum Poster

In stock on 1/1/86 - 275,000

In stock on 5/1/87 - 162,600

Used during period - 112,400

The National Capital Area Federation of Garden Clubs, Inc. and the Friends of the National Arboretum Board have both been approached on the possibility of producing a National Arboretum Guidebook. This publication could be sold in the Arbor House Gift Shop and while the initial cost will be high, it will pay for itself in time through sales of the book.

A first class guide book would eliminate or reduce the need for many individual publications currently done at the Education/Public Services Unit's expense. The text and photographs can be produced through the Education and Public Services Unit at the Arboretum. A mock up of a proposed guidebook has been assembled by a proposed firm interested in producing such a publication.

K. Correspondence Aids. Forty five correspondence aids on various topics were prepared or revised for public distribution in response to telephone or written inquiries and for distribution at Arboretum classes and lectures. Preparation of correspondence aids is done by many staff members as well as

Dr. Cathey, Mr. Neumann, Mrs. Jarvis, and Mrs. Creel. Topics include plant sources, recommended varieties or cultivars, cultural information and how-to information. All correspondence aids are reviewed and edited if necessary for content and accuracy by Mr. Neumann, and are reviewed and proofread by Mrs. Creel and Mrs. Jarvis to insure that no errors occur in typing. Mrs. Creel is responsible for preparation of proper forms and subsequent printing at either Beltsville or Downtown Agriculture locations.

Eighty four short order printing orders accounting for 77,320 copies were printed at the Beltsville, Maryland printing facility. Twenty-nine orders accounting for 157,000 copies were printed at the U.S. Department of Agriculture facility.

L. Radio-TV Talks. Mr. Erik Neumann, Head of the Education and Public Services Unit appears on local and national radio and television programs. These include periodic presentations on WGTS radio, the American University, WAMU-FM, and USDA programs. Several radio spots were taped this year for distribution by the U.S. Department of Agriculture to radio stations nationwide. These programs were taped on site at the National Arboretum. Taped interviews were also given this year for NBC, WRC-TV, TV Channel 5 News, and a special program was taped for Japan Television with Ms. Kay Enrikido.

M. Lectures and Classes. Programs of a horticultural or botanical nature as well as slide programs on various private and public gardens around the world are given routinely by Mr. Neumann to various organizations. Of special interest are slide programs on "French Gardens", "Wildflowers of Greece", "Tropical Blossoms of Tahiti", "Moorish Gardens of Spain and Portugal", "Gardens of Thailand and Singapore" and other foreign gardens. These programs have been extremely popular and well received. Special lectures were given at Brookside Gardens in Wheaton, Maryland and at Green Spring Horticultural Center, both area botanic gardens. Mr. Neumann lectured this year at the Eleventh Annual Professional Grounds Management Seminar in Virginia; and for a Landscape Design class at the University of Delaware. He presented a lecture on "The Effective Use of The National Arboretum as an Educational Resource", for the annual Elementary Science Resource Teachers Meeting. Also given were a series of three training sessions to Master Gardeners Training Programs in cooperation with several area Cooperative Extension Services. These include Prince William County, VA., Alexandria and Arlington Counties in Virginia, and the University of the District of Columbia Cooperative Extension Service.

Other lectures include:

Training class given to maintenance employees of the Architect of the Capitol.

National Academy of Sciences - "A Visual Tour of the National Arboretum"

Beltsville Explorer Scout Post 1810 - "Arboretum Plant Breeding, Grounds and Collections"

Bay Foundation - "The National Arboretum"

District of Columbia Public Schools - "The National Arboretum"

Garden Club of Virginia - "Spring Blooming Trees and Shrubs"

Human Environment Center, Washington, DC - "Careers in Horticulture"

Capital Childrens Museum, Washington, DC - "The National Arboretum"

Programs were also presented to the National Capital Area Federation of Garden Clubs Inc., and to numerous garden clubs and other organizations.

N. USDA Graduate School Committee on Field Studies and Horticulture. Mr. Neumann serves on this committee as coordinator of the National Arboretum Horticulture Series. Responsibilities include selection of instructors, course content, and promotion of the program. Regularly attends USDA Graduate School Teacher/Learning Effectiveness Workshops held for Graduate School facility and staff.

The following classes are now held on a regular basis at the Arboretum in the National Arboretum Horticulture Series and in the Natural History Field Studies Program in cooperation with the Audubon Naturalist Society:

Basic Methods of Plant Propagation  
Indoor Light Gardening  
Plants in the Home  
Introduction to Bonsai  
Herbs  
Home Vegetable Gardening  
The Home Greenhouse  
Raising Annuals, Perennials, Bulbs, and Roses  
The Care and Maintenance of Outdoor Plants  
Nature Photography  
Woody Plant Identification  
Spring Flowering Identification  
Nonflowering Plants  
Ferns and Fern Allies  
Landscaping With Perennials  
Wildflower Cultivation  
Landscape Plants of Spring  
Landscape Plants of Summer  
Landscape Plants of Autumn  
Landscape Plants of Winter  
Introduction to Landscape Architecture  
Landscape Architecture Materials and Techniques of Construction  
Landscape Use of Trees, Shrubs, Vines, and Flowers

The Adult Education classes are taught in a 3 to 10 session format, making use of classroom and greenhouse facilities at the Arboretum. New classes added this year include Wildflower Cultivation and Landscaping with Perennials.

O. National Arboretum Horticulture Classes. In addition to the Horticulture and Natural History classes in cooperation with the USDA Graduate School, Mr. Neumann develops and publicizes through the monthly events newsletter, numerous short courses and workshops. These short courses are often repeated yearly due to their extreme popularity. Classes are taught by outside specialists, recruited by the Head of the Education and Public Services Unit and are taught by Arboretum Staff members and plant society specialists. Classes are offered for the general public including both children and adults. Registration and follow up is the responsibility of Mrs. Creel. New classes this year of special interest include Floral Photography (offered twice), Drawing With Native Plants (offered twice), Basket Making (again

repeated), and Cooking With Herbs. These are in addition to courses offered repeatedly over the past few years including such popular classes are Beginning Bonsai, Landscape Plants, and courses on Growing Herbs, to name only a few. Calendar and facilities coordination is done by Mrs. Jarvis of the Education and Public Services Unit.

P. Meetings and Events. Regularly scheduled horticultural and botanical organization meetings held in the Arboretum auditorium include:

Herb Study Group of the Potomac Unit of HSA, National Capital Orchid Society, Mid-Atlantic Supplemental Orchid Judging Center, Gloxinia and Gesneriad Society, and Washington Bonsai Club meet on a monthly basis; Camellia Society of the Potomac Valley, Potomac Valley Chapter of the American Rhododendron Society, Holly Society, Chesapeake and Potomac Iris Society, National Capital Area Federation of Gardens Clubs, Inc., District I, Herb Society Potomac Unit, and the National Bonsai Foundation meet bi-monthly; Washington Daffodil Society, Washington Daylily Club, and Potomac Lily Society meet quarterly; and the Potomac Valley Chapter of the American Rock Garden Society meets annually. The National Capital Area Federation of Garden Clubs, Inc. holds bimonthly meetings at the Arboretum, as well as various committee meetings throughout the year, including a Horticulture School and Landscape Critics Council and Judges Council.

Q. Special Groups. The National Arboretum hosted the following USDA Agencies:

Plant Protection and Quarantine - Gypsy Moth Certification Office of Advocacy and Enterprise  
Office of Consumer Affairs  
Office of International Cooperative Development  
Office of EEO Advisory Committee  
Farmers Home Administration  
EEO Training for Supervisors  
Food Safety and Inspection Service

Special Groups:

American Electronic Association Spouses  
International Cooking Convention  
Maryland Arborists Meeting  
The Hospitality and Information Service  
Ohara School of Ikebana International  
Thomas Ayers SCS Awards Ceremony  
Professional Grounds Maintenance Society  
Bonsai Convention Site Dedication and Barbeque  
International Science Teachers Convention  
International Neighbor's Club  
Republican Senate Wives  
American Plant Physiologists Society Annual Meeting  
Rare Plant Committee of Garden Club of America

Special Events:

Latrobe Capital Columns Groundbreaking and Reception  
Bonsai Gala in Commemoration of 10th Anniversary of the National Bonsai Collection  
Bonsai Convention Site Dedication and Barbeque

R. Special Functions Requiring Catering Services or Refreshments. Luncheons, dinners, and refreshments are regularly arranged for and served to various groups or special functions. Those of particular note are Friends of the National Arboretum (FONA) Board, National Arboretum Advisory Council, and twenty times per year for Living Legends programs. Special events at which food was provided include the Latrobe Capital Columns Groundbreaking Reception, Bonsai Gala and Tenth Anniversary of the National Bonsai Collection, Bonsai Convention and Site Dedication, and the Dedication of the Kay Lahr Memorial Statue in the new garden adjacent to the Activities Center. Lunches have also been served periodically for various organizations or special guests at the invitation of the Director.

All arrangements with caterers are made by Mrs. Jarvis of the Education/Public Services Unit.

S. Flower Shows. The following plant societies and organizations held flower shows in the auditorium of the Administration Building: Potomac Valley Camellia Society (spring show), Potomac Bonsai Association, National Capital Daylily Club, National Capital Iris Club, the National Capital Orchid Society, Potomac Valley Rhododendron Society, Potomac Lily Society, The Gloxinia and Gesneriad Society, the National Cactus and Succulent Society, National Capital Area Federation of Garden Clubs, Inc. District I Flower Show, Beardless Iris Show, and the Chun Sun Mi Floral Art Institute. These flower shows play an important role in the Arboretum's educational programs and their attendance is overwhelming. Scheduling of flower shows is done by Mrs. Jarvis with Mr. Williams assisting with set up and installation.

T. National Arboretum Educational Events Series. The Education and Public Services Unit schedules, on a monthly basis, a series of lectures, nature walks, specialized tours, horticultural and botanical films and videos, art displays, exhibits, flower shows and horticultural demonstrations. In order to keep the public informed of events at the Arboretum, the Education/Public Services Unit writes and distributes an events newsletter listing these scheduled events. The newsletter has now been expanded to a four page format this year. The newsletter is distributed to over 5,000 persons and organizations monthly. It is sent on a regular basis to over 188 persons on our local press list and to 72 national press contacts. Press mailings were sent out seventeen times this past year. Individuals on the press list are sent notices well in advance of events and include radio and television stations, libraries, Washington Convention Visitors Bureau and area Cooperative Extension Service offices. It is also forwarded to Friends of the National Arboretum for inclusion in their Newsletter. In addition press releases are sent on a regular basis to the area media for program and Arboretum publicity.

One hundred fourty one specialized tours, lectures, horticultural demonstrations, films, exhibits and other events were scheduled during the past year.

Erik Neumann, Head of the Education and Public Services Unit continues to present lectures routinely on numerous topics at the Arboretum for the benefit of the general public in addition to outside organizations mentioned earlier in this report. Some of these recent presentations include:

Flowering Trees and Shrubs for Spring Bloom  
Flowering Dogwoods  
Oaks  
Plants for the Shady Garden  
Tree Identification for Children  
Summer Identification of Deciduous and Evergreen Trees  
Landscape Plants for Spring Bloom  
Dogwood Walk and Slide Lecture  
Wildflowers of Greece  
Methods of Naturalizing Bulbs

The Education and Public Services Unit plays a major role in coordinating workshops, lectures, and symposia in cooperation with the Friends of the National Arboretum including the following recent events:

Wildflower Symposium  
Orchid Day  
Rosemary Verey Lecture  
American Indian Day  
Herb day  
Daffodil Culture for Everyone  
Wildflower Symposium and Seed Sale  
Fern Day Lecture and Tour  
Azalea Sale  
Herb Plant Sale

In cooperation with civic and local organizations the Arboretum has made its facilities available to the following groups:

Ward 5 Town Hall Meeting - D.C. Council Member Spaulding  
Bonsai Biathlon - D.C. Roadrunners Club  
Easter Egg Roll - Carver Terrace Citizens Association

U. Slide Collection. A concentrated effort continues to be made to photograph plant material commonly used in the landscape in order to assemble a comprehensive set of 35mm slides to be copied and made available for teaching purposes to other institutions and individuals. Mr. Louis Williams of the Education/Public Services Unit continues to photograph plant materials selected by the Head of the Unit. A slide carousel on the National Arboretum was prepared and recently updated and a slide program on Aquatic Gardening is also now completed. The Arboretum slide lecture has been duplicated and is available on a loan basis. A new camera has recently been purchased for Mr. Williams use in photographing plant materials and events.

Arboretum photographs have been provided to many newspapers and magazines for publication with articles on the National Arboretum. Of special interest are:

The Saturday Evening Post  
Dining and Diversions Magazine  
Annapolitan  
Redefinition  
Horticulture  
Washingtonian  
Mid-Atlantic Country

In addition, Erlich-Manes Advertising has used Arboretum photographs in its advertising brochures for hotels and the National Park Service is including Arboretum provided photographs in a new guide book.

A total of sixty seven slide loans have been made to press contacts and selected individuals. The Arboretum slide set with narrative has been lent four times this year. Copies have also been provided to key individuals for their use.

V. Photo Orders, Printing Orders, and Typing. Mrs. Debbie Creel of the Education/Public Services Unit coordinates printing and photo orders for the entire Arboretum staff. Orders are processed through multiple sources. Mrs. Creel follows up on orders and sees to it that they are returned in a reasonable amount of time to the proper staff member. One hundred ninety photo orders were processed through the Education/Public Services Unit this year for the entire Arboretum staff.

Typing for the Unit is done by Mrs. Creel and Mrs. Christine Hambach, both skilled, accurate typists.

W. Program Aid and Brochure Distribution. In response to requests for information, 1,879 Correspondence Aids, handouts, and brochures were sent out by Christine Hambach and Debbie Creel. Also sent were 9,590 posters to school libraries, individual children, motels and others.

In addition, 11,000 maps were distributed to area hotels, motels, Congressional offices, and the Washington Visitors Center.

X. National Capital Area Federation of Garden Clubs, Inc.. Under a cooperative agreement with the National Capital Area Federation of Garden Clubs, volunteers aids are provided to staff the Information and Activity Center along with regularly paid employees who are responsible for staffing and purchasing items for resale in the Arbor House Gift Shop. Gift items and books are reviewed by the Head of the Education/Public Services Unit for suitability for sale in the shop. Eight photographs have been provided for use this year in the production of new postcards of the Arboretum's gardens and collections. A new set of note cards featuring sketches of Arboretum scenes have been printed and are now on sale in the shop.

Other Arboretum oriented items for sale in the gift shop are: playing cards with the Arboretum logo, tops with the National Arboretum printed on it, Arboretum bumper stickers, and of course the National Bonsai Guide Book and a guide to The National Herb Garden.

Y. Press Interviews and Inquiries. Press interviews are routinely given by Mr. Neumann to both the local, national, and international press including the following of note:

Jan Voudstia (Netherlands, Institute of Advanced Architectural Studies) representing the University of York, England for articles to be published in both England and The Netherlands.

Sue Fonney, Federal Times - Photo Sessions

Jonathan Rosenbloom - for Contact 3-2-1, a national children's magazine (New York)

Jim Watson - Deputy Editor, Washington Times - for a freelance article on Houseplants.

Jessica Morrison - For Agriculture Research, a USDA publication

Penny Moser - Discover Magazine

Erica Miller - Washingtonian Magazine, on Arboretum and events

Larkey McFee - National Geographic Magazine

Roberts E. Ehrgott III - The Saturday Evening Post, also provided photographs for article)

Vickie Congdon - National Gardening Magazine

Wanda Patrick - Washington Living Magazine

Alice Chandler - Washington Living Magazine

Paula Zeller - USDA Office of Governmental and Public Affairs

Andrea Seigal - Fairfax Journal

Dossier Magazine - Bonsai Interview

Pierra La Rocha - Washington Post, Weekend

Country Magazine - National Arboretum Gardens and Collections

Charles Fenevese - Washington Post, Flowering Trees

Charles Fenevese - Washington Post, 17 Year Locust

Terri Kominers - Parent Guide Magazine

Sarah Lyell - New York Times, Bees

Sarah Grusin - Museum Washington Magazine

Eileen Spraker - News Journal, Wilmington, Delaware

Isabella Rane - NBC News, "Capital Columns"

Virginia Mansfield - Washington Post

B.W. Feldman - Annapolis, Maryland

Jean Fuiuimara - P.M. Magazine

The Evening Post, Charleston, South Carolina, "Bees at the National Arboretum"

Virginia Mansfield - The Washington Post, Interview on the National Arboretum

Virginia Grenier - The Washington Times Magazine

Erwin Goldstein - Hartford Connecticut Current

Alice Jablonski - National Geographic Magazine

Lauren Sheriff - Dining and Diversions

Yuan Jin - Beijing Daily

Guorong Zhang - China News

Susan Bernjano - Smithsonian Magazine, Bees at the National Arboretum and Honey Sales

Jim Joseph - Ford Times, Los Angeles, California, Quick Stop Syndicated Column

Assisted Steven Berberich of the Agricultural Research Service Information Staff and coordinated at the Arboretum, the press briefings on research topics.

Z. Friends of the National Arboretum. The Education and Public Services Unit interacts on a regular basis with the Friends of the National Arboretum. Lectures and classes are developed and offered as cooperative ventures between the Arboretum and FONA. Registration for these events is the responsibility of Debbie Creel. Funds for programs in which there is a charge is recorded and forwarded to the proper FONA account by Mrs. Creel. Facilities, room

scheduling, refreshments, and coordination of the programs is done by Mary Ann Jarvis, Information Assistant of the Education and Public Services Unit. Arrangements for catering and facility use for regular FONA Board meetings is also done by Mrs. Jarvis.

Mr. Neumann, Head of the Education/Public Services Unit regularly provides materials and information for use in the FONA Newsletter and on occasion provides articles for the newsletter. Photographs of the Arboretum's gardens and collections, and historical photographs and pictures taken by Mr. Williams and Mr. Neumann at events held at the Arboretum which are co-sponsored by FONA are provided for use in the newsletter.

FONA has recently purchased a 45 inch color television set and a VCR for use at Arboretum and FONA events which is much appreciated and frequently used.

a. Special Projects. Erik Neumann, Head of the Education/Public Services Unit serves as a member of the Board of Directors of the Landscape Design Program Advisory Board of George Washington University.

Mr. Neumann serves on the USDA Graduate School Committee on Field Studies and Horticulture as Coordinator of the National Arboretum Horticulture Series. Responsibilities include selection of instructors, course content, and promotion of the program. Regularly attends USDA Graduate School Teacher/Learning Effectiveness Workshops held for Graduate School faculty and staff.

Mr. Neumann appointed as Arboretum coordinator of "Just Say No" program.

Mrs. Jarvis has been appointed as the National Arboretum representative for the Federal Women's Program - Beltsville Area Sub-Committee.

Mrs. Jarvis served on the Executive Committee of the National Bonsai Foundation's Gala Celebration in commemoration of the 10th anniversary of the Japanese Bonsai Collection.

Mrs. Jarvis coordinated the Groundbreaking Ceremony and reception for the Latrobe Capital Columns.

Mrs. Jarvis assisted in the arrangements for the Bonsai Convention Barbeque, the Site Dedication of the American Bonsai Pavilion and the Herb Society Convention in June 1986.

b. Awards/Training.

Erik Neumann - EEO For Supervisors and Managers: A Human Resource Management Approach

Erik Neumann - Video Teleconference "Management and EEO Civil Rights In the U.S. Department of Agriculture"

Christine Hambach - Plant Nomenclature In Regards to Everyday Typing

Debbie Creel - AGRICOLA Workshop - Emphasis on outline database access to Agriculture Literature in AGRICOLA (Agriculture Online Access)

Erik Neumann - Performance Appraisal System Training, Beltsville

Mary Ann Jarvis - U.S.D.A. Award for 20 Years of Service

Debbie Creel - Received cash award from the Arboretum for "Outstanding continued performance"

Louis Williams - Photography, Composition I, USDA Graduate School

Louis Williams - Floral Photography Workshop, Wuanita Wine, 12 hour National Arboretum/FONA sponsored workshop

Louis Williams - EEO Workshop, ARS-USDA sponsored dealing with Agency policy

Louis Williams - EEO Counselor Workshop, Office of Personnel Management

c. Publications.

Neumann, Erik A. Washington's Hidden Treasure - The U.S. National Arboretum, Bicentenary of Indian Botanic Garden. "Network of Botanic Gardens", a Commemorative Volume, Botanic Garden, Caluctta, India. 1986.

Neumann, Erik A. Azalea Fever Causes Arboretum to Open It's Gates, FONA News, April 1987

Neumann, Erik A. The U.S. National Arboretum, Prosperity Magazine. February 1986.

Neumann, Erik A. Washington's Own U.S. National Arboretum, Washington Living Magazine, March 13, 1986

Neumann, Erik A. Reliable Plant Materials for the Washington Area - Recommended Street Trees, The Dupont Circle Citizen, June 1986

ANNUAL REPORT OF THE LIBRARY 1986

Members of the Library Committee for 1986 were Chairman Erik A. Neumann, Gene Eisenbeiss, Elizabeth Ley, Sylvester March, Frederick A. Meyer, Holly Shimizu, Barry Yinger and ex-officio Henry M. Cathey. Delegates from the National Agricultural Library (NAL) were Elizabeth Goldberg, Head, Farming & Forestry Reference Branch, and Susan Whitmore, Arboretum Branch Librarian and Reference Librarian, NAL.

Book Purchases: The purchasing of books and the renewal of serial subscriptions for the library is handled by the Acquisitions Branch of NAL. Selections are made by the Library Committee and forwarded to NAL by the branch librarian. Funds for book purchases are provided by NAL and funds for serial purchases are transferred to NAL from the Arboretum budget. As in the past, NAL has continued to catalog books for the library. Approximately 238 monographs were added to the Library's collection in 1986 and 180 serial titles were received. Notable additions to the collection include Peter L. and Mary H. Bloomer's Timeless Trees: the U.S. National Bonsai Collection; the Nihon Bonsai Society's A Magnificent Outline of Japanese Bonsai, Stone, and Famous Items, a 12 volume set of books on Japanese Bonsai; Bonsai, Penjing: Collection du Jardin Botanique de Montreal Botanical Garden and a large collection of books on conifers from the library of Dr. Murry.

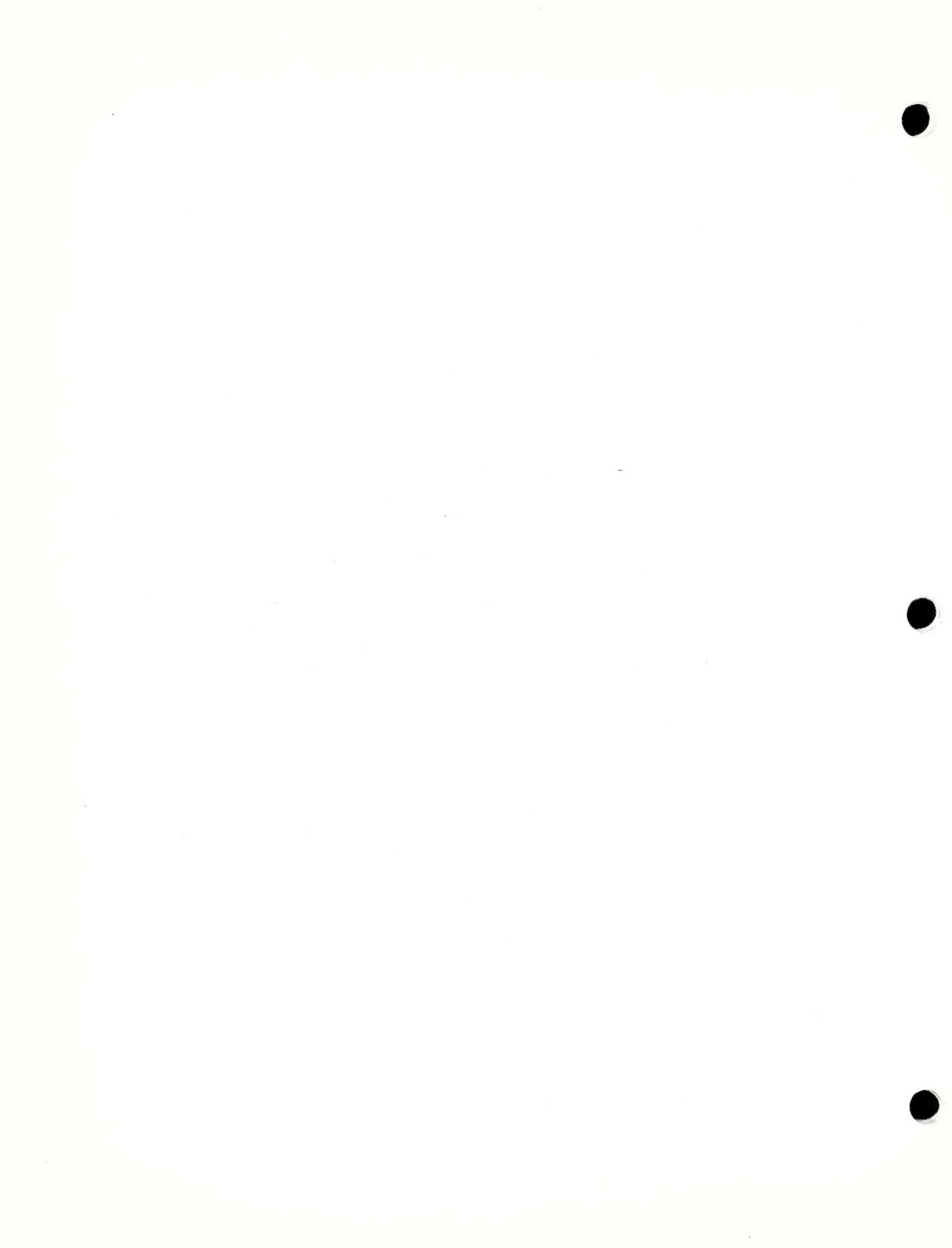
Gifts: The library's collection has continued to grow, in part, due to the generosity of many who have contributed their books and money for books over the year.

Publications: Library publications for the year include Journal and Newsletters Currently Received, listing serial publication to which the library currently subscribes; the 1986 Library Acquisitions List, listing all publications acquired by the library last year; a Bibliography of Books and Journals and List of Societies and Suppliers Dealing with Herbs by Susan Whitmore and Holly Shimizu and A Bibliography of Selected Books and Journals and a Listing of Societies and Institutes Relating to Bulbs.

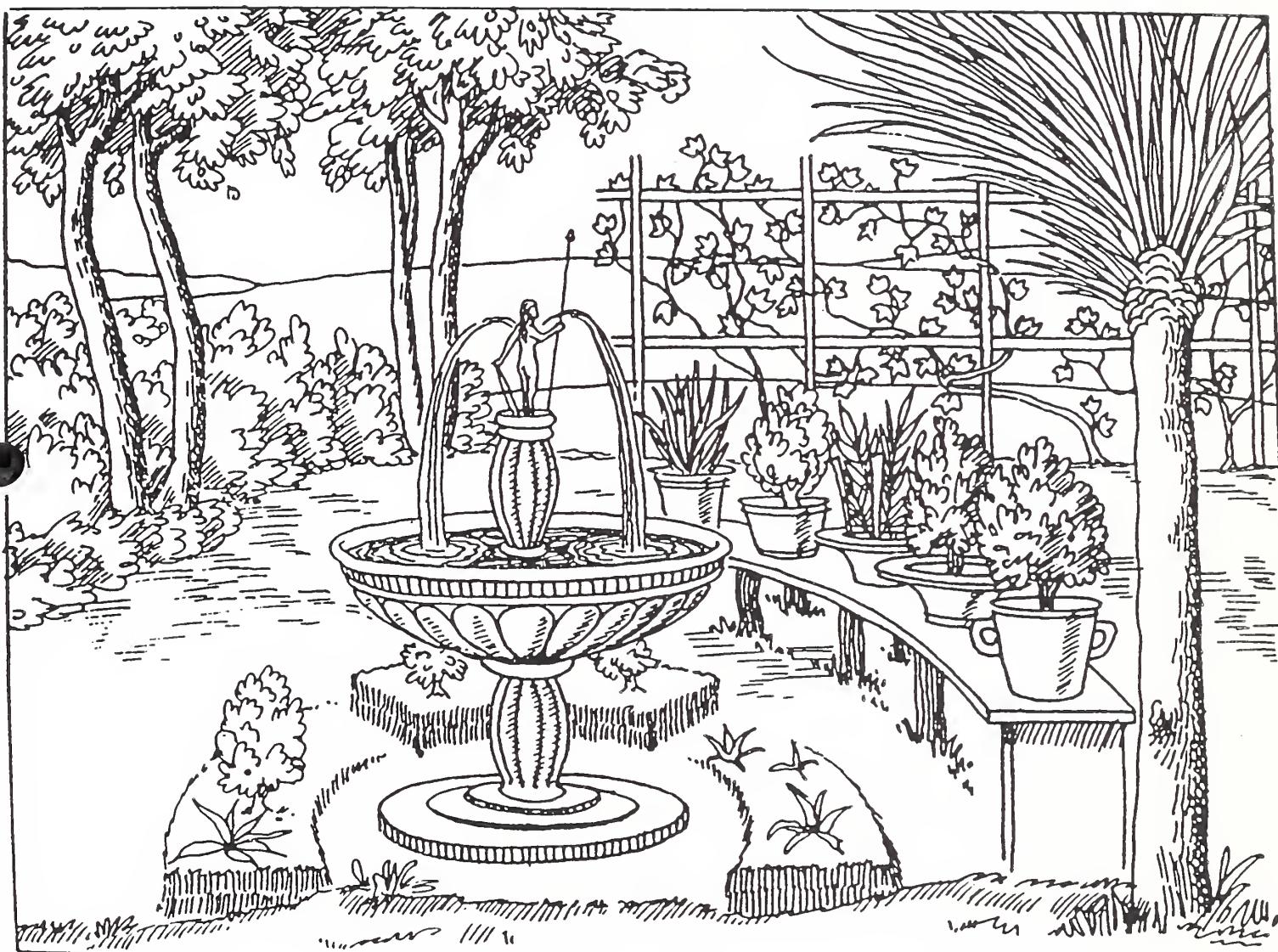
Volunteers and Staff: FONA has been of help to the Library in advertising in its newsletter for Library volunteers. Four FONA members have helped in the library this year: Jules Koetsch, Carol Kopolow, Lucille Stark, and Phil Yaney. Their contributions have included checking in journals, shelving, compiling a list of rare books at the library, making book plates for the Nihon Bonsai society books, filing plant patents and updating the current journals list. Staff from the National Agricultural Library placed 6,656 USDA pomological fruit paintings into acid-free envelopes and devised a serial claiming procedure for the library.

*Susan C. Whitmore*

SUSAN C. WHITMORE  
Librarian

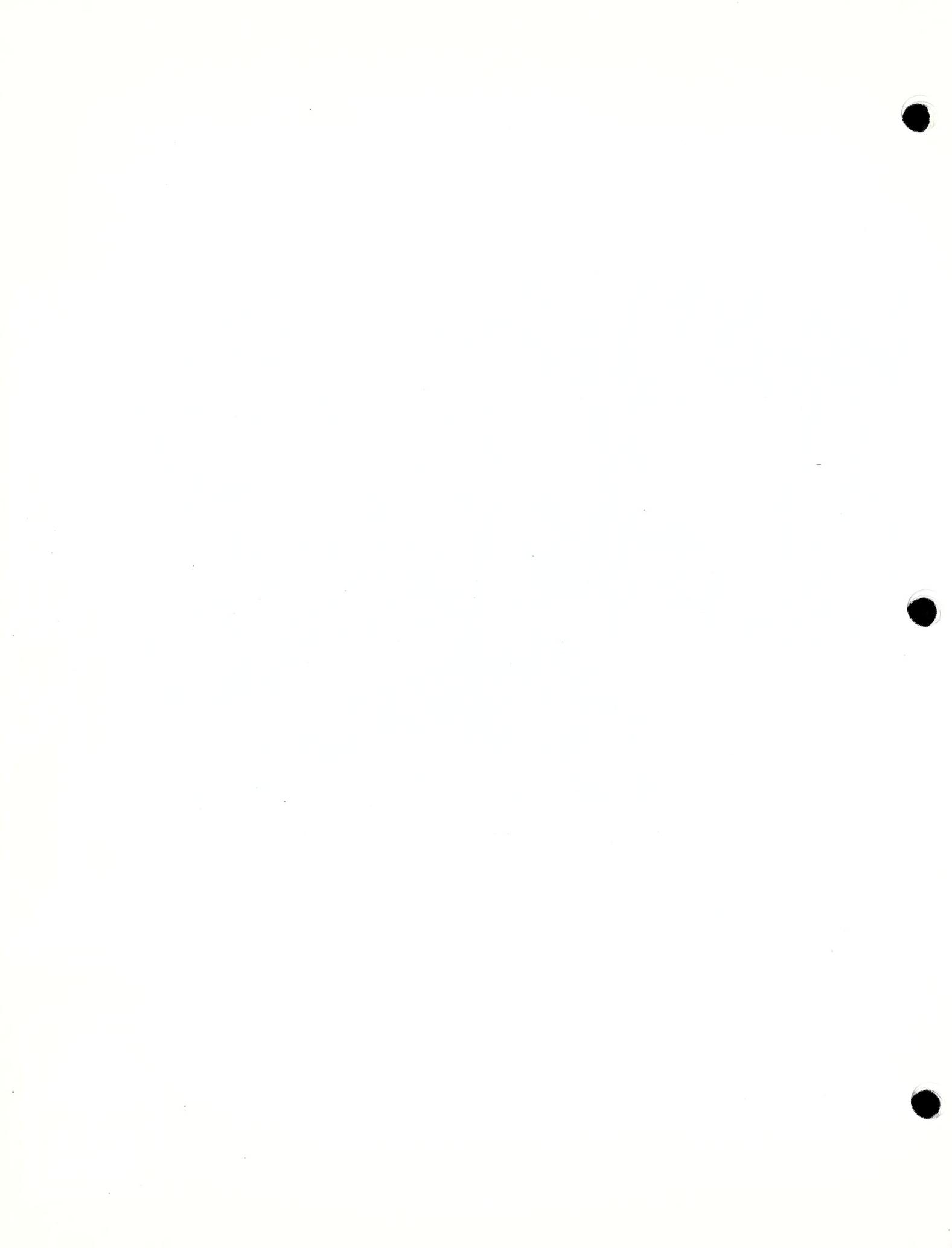


## RARE BOOKS



U.S. NATIONAL ARBORETUM LIBRARY





BOOKS AND JOURNALS IN THE RARE BOOK CAGE

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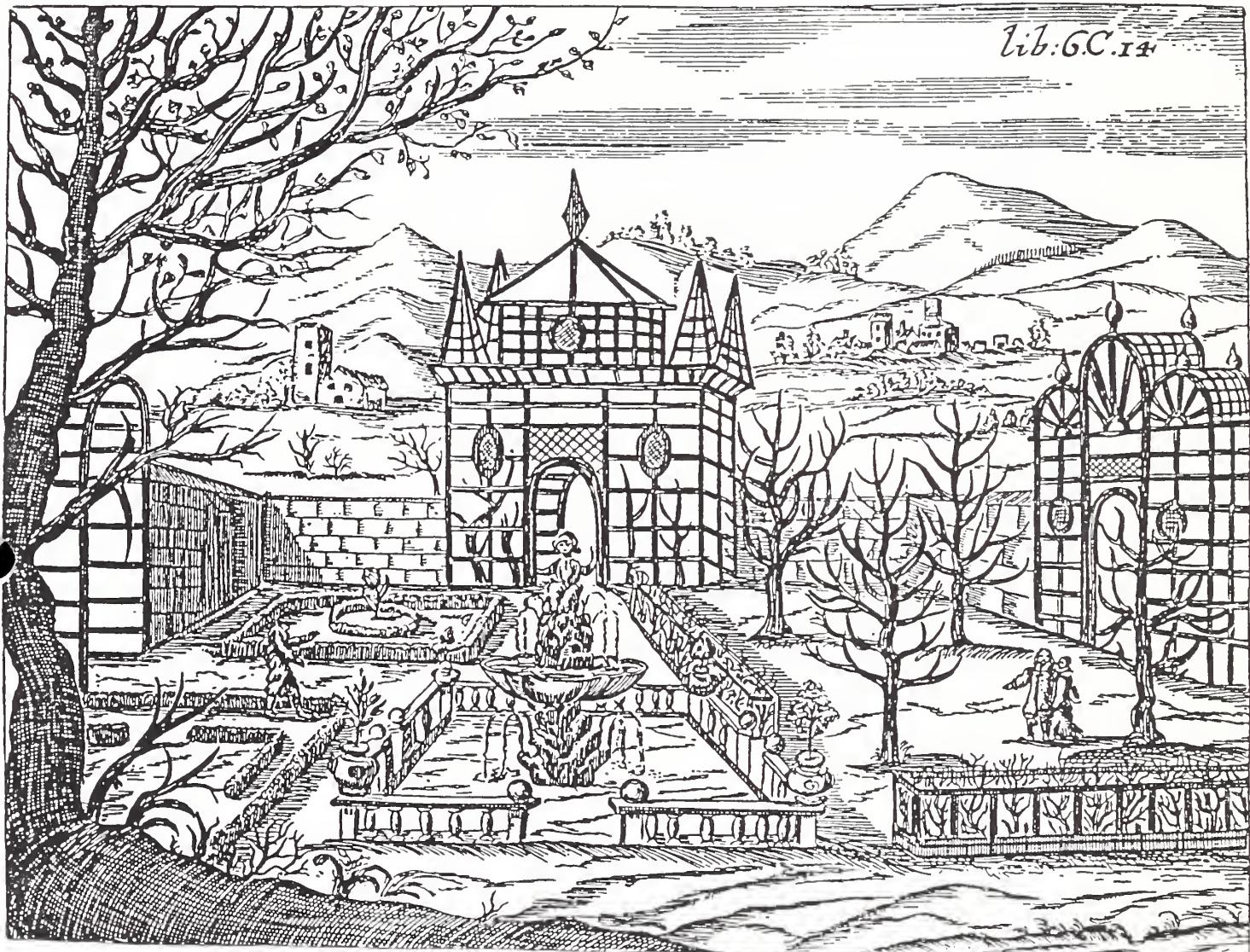
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Prepared by Phillip Yaney  
U.S. National Arboretum Library  
3501 New York Avenue, NE  
Washington, D.C. 20002

March 1987

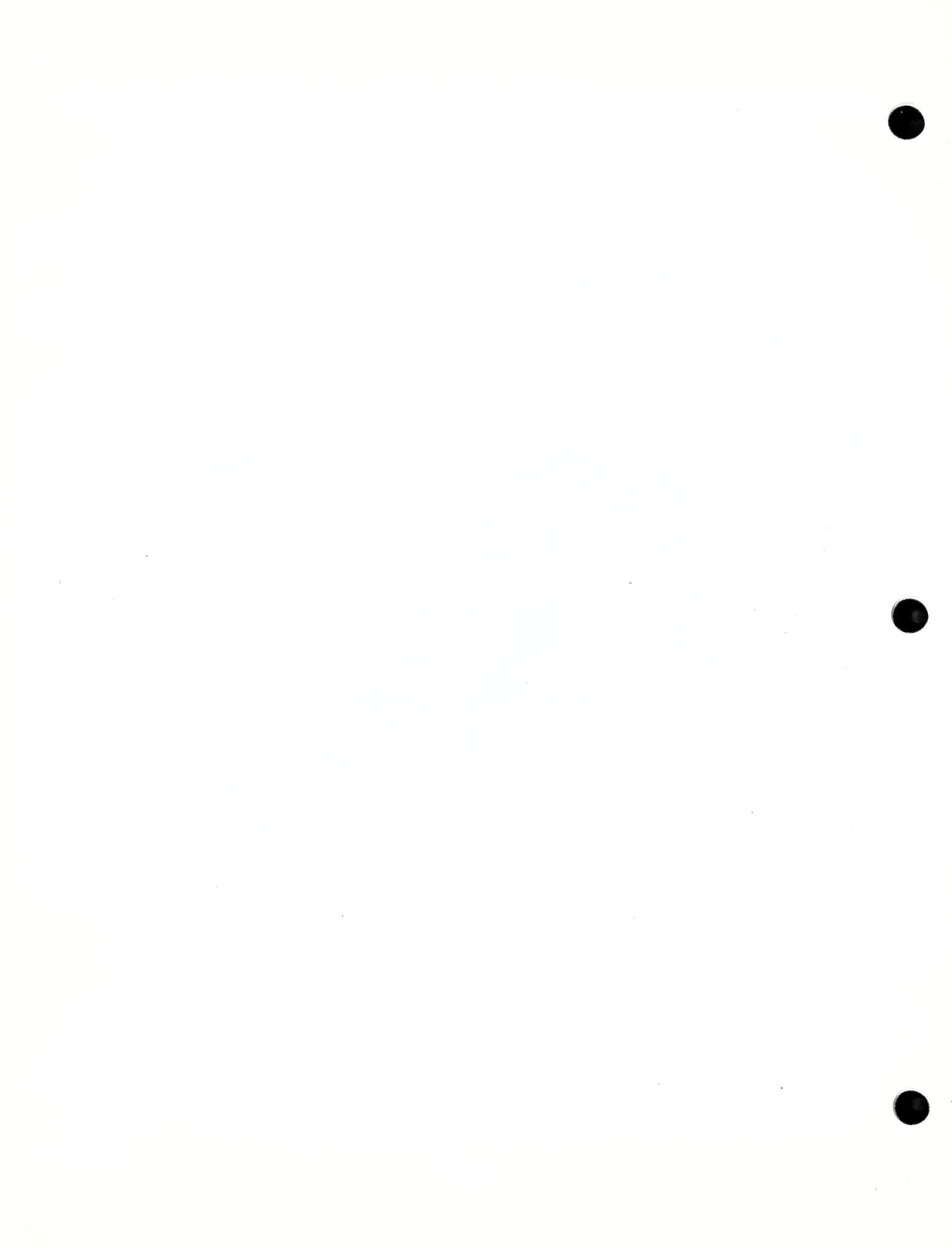
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Acta Phytotaxonomica Sinica. Peoples Republic of China  
(bimonthly/G)

+ Agricultural Library Information Notes. USDA (monthly/G)

Agricultural Research. USDA (10 X per yr/G)

Aliso (semi-annual/S)

American Association of Botanical Gardens & Arboreta

The Bulletin (see The Public Garden)

Membership Directory (annual/S)

+ Newsletter (monthly/S)

American Bamboo Society (see Journal of the...)

American Camellia Yearbook (annual/G)

American Conifer Society Bulletin (quarterly/G)

American Fern Journal (quarterly/S)

American Forests (monthly/S)

American Hemerocallis Society (see The Daylily or Region 3 Newsletter)

American Horticulturist (monthly/S)  
News Edition (monthly/S)

American Hosta Society (see Hosta Journal...)

American Journal of Botany (10 X per yr/S)

American Magnolia Society (see Magnolia)

American Nurseryman (semi-monthly/S)

American Orchid Society Bulletin (monthly/G)

American Peony Society. Bulletin (quarterly/S)

American Plant Life Society (see Herbertia)

American Rhododendron Society. Journal (quarterly/ )

American Rock Garden Society. Bulletin (quarterly/S)

American Rose Annual. American Rose Society (annual/S)

American Society for Horticultural Science, Journal of the (bimonthly/S)

Annual Report. U.S. National Arboretum (annual/G)

Arboretum Bulletin. Arboretum Foundation, Seattle, Washington (quarterly/S)

Arboretum Kornickie (annual/G)

+ Arboretum Leaves. Holden Arboretum (quarterly/G)

Arboricultural Journal (quarterly/S)

Arnold Arboretum (see Journal of the...)

Arnoldia (quarterly/S)

Aroideana (quarterly/S)

+ Atlanta Botanical Garden Newsletter (quarterly/G)

Australian Plants (8 X per yr/S)

+ Avant Gardener (monthly/G)

Azalean. Azalea Society of America (quarterly/G)

+ Bamboo Newsletter (irregular/G)

+ Bartlett Arboretum Newsletter (3 X per yr/G)

Begonian (bimonthly/G)

Biochemical Systematics & Ecology (quarterly/S)

Boletim da Sociedade Broteriana (annual/G)

Bonsai Bulletin (quarterly/G)

Bonsai Clubs International (bimonthly/G)

Bonsai in California (annual/S)

+ Botanical Center Newsletter (quarterly/G)

Botanical Gazette (quarterly/S)

Botanical Review (quarterly/S)

Boxwood Bulletin American Boxwood Society (quarterly/S)

Brittonia. New York Botanical Garden (quarterly/S)

- + Brookgreen Journal (formerly Brookgreen Bulletin)  
(quarterly/G)
- + Brooklyn Botanic Garden Newsletter (See Plants & Gardens)  
Brooklyn Botanic Garden Record (see Plants & Gardens)  
Bulletin of the American Hosta Society (see Hosta Journal)
- + Bulletin of the Hunt Institute for Botanical Documentation (semi-annual/G)  
Bulletin of the Torrey Botanical Club (quarterly/S)  
Bulletin Van de Batonijsche Tuinen Wageningen (1 per year/G)  
Business of Herbs (bimonthly/G)  
Camellia Journal (quarterly/G)  
The Camellia Review. Southern California Camellia Society  
(quarterly/S)  
Canadian Journal of Botany (monthly/S)  
Castanea. Southern Appalachian Botanical Club  
(quarterly/S)
- + Cheek Wood (monthly/G)  
Chronica Horticulturae (quarterly/G)  
Chrysanthemum. National Chrysanthemum Society  
(quarterly/G)  
Contributions from the Gray Herbarium of Harvard University (irregular/S)  
Cornell Plantations (quarterly/G)  
Daffodil Journal. American Daffodil Society  
(quarterly/S)
- + Dawes Arboretum Newsletter (monthly/G)  
The Daylily. American Hemerocallis Society (quarterly/S)  
Desert Plants (quarterly/S)  
Deutsche Baumschule (monthly/S)  
Diversity ( /G )

- Down to Earth (semi-annual/G)
- + Eastern Region Begonia News (bimonthly/G)  
Economic Botany (quarterly/S)
- + Elisha Mitchell Scientific Society, Journal of the  
(quarterly/S)
- + Endangered Species Technical Bulletin (monthly/G)  
Euphytica. Netherlands Journal of Plant Breeding  
(tri-annual/S)
- + Experiment Station Letter. USDA (weekly/G)  
Extension Review. USDA (quarterly/G)  
Fairchild Tropical Garden Bulletin (quarterly/G)
- + Fernwood News (monthly/G)
- + Fernwood Notes (8 X per yr/G)
- + Fiddlehead Forum. Bulletin of the American Fern Society  
(bimonthly/S)  
Flower & Garden (bimonthly/S)
- Flowers & (monthly/G)
- Folia Dendrologica (annual/G)
- + FONA News (bimonthly/G)  
Forest Science (quarterly/S)
- + Friends of the Matthaei Botanical Gardens. Newsletter  
(quarterly/G)  
Garden. Garden Society, New York Botanical Garden  
(bimonthly/S)
- Garden. Royal Horticultural Society (monthly/S)
- Garden Center Bulletin (monthly/G)
- Garden History Society  
Journal (semi-annual/S)  
+ Newsletter (3 X per yr/S)
- Gayana (Chile) (semi-annual/G)
- + Geiger News (quarterly/G)

- + George Landis Arboretum Newsletter (quarterly/G)  
Gloxinian (bimonthly/S)
- Green Scene (bimonthly/G)
- + Green Thumb News (monthly/G)  
Hemerocallis Society (see The Daylily)  
Herb Quarterly (quarterly/S)  
Herbarist. Herb Society of America (annual/G)  
Herbertia. International Journal of the American Plant Life Society (annual/S)
- + Herblurb (monthly/G)  
Heritage Roses (quarterly/S)  
Hoehnea. Instituto De Botanica. Sao Paulo, Brazil  
( /G)
- Holly Society Journal (quarterly/S)
- Horticulture (monthly/S)
- HortScience (bimonthly/S)
- Hosta Journal (annual/S)
- Hoyan. Bulletin of the Hoya Society International  
(quarterly/G)
- + Hoyt Arboretum, News From (monthly/G)
- + Huntia (irregular/G)
- + Hybrid. Arthur Hoyt Scott Horticultural Foundation  
(quarterly/G)
- + IBPGR Regional Committee For Southeast Asia Newsletter  
(quarterly/G)  
Institute For Horticultural Plant Breeding Annual Report  
(annual/G)
- International Bonsai (quarterly/S)
- Isozyme Bulletin (annual/S)
- + IUFRO News (quarterly/G)

Ivy Journal. American Ivy Society (quarterly/S)

Journal. (see American Rhododendron Society)

Journal of Environmental Horticulture (quarterly/S)

Journal of Heredity (bimonthly/S)

Journal of the American Bamboo Society (semi-annual/S)

Journal of the Arnold Arboretum (quarterly/S)

+ Kampong Notes ( /G)

Kew Bulletin (irregular/S)

Kew Magazine (quarterly/S)

Lejeunia ( /G)

Living Museum (quarterly/G)

Longwood Gardens. Program Seminars (annual/G)

Magnolia. Journal of the American Magnolia Society  
(semi-annual/S)

Memories du Museum National D'Histoire Naturelle  
(irregular/G)

Memorias da Sociedade Broteriana (irregular/G)

Missouri Botanical Garden Library Accession List  
(monthly/S)

+ Morris Arboretum Newsletter (bimonthly/S)

+ Morton Arboretum Quarterly (quarterly/G)

National Gardener (bimonthly/G)

+ NBRI Newsletter. National Botanical Research Institute  
(quarterly/G)

+ New York Botanical Garden (Newsletter) (quarterly/G)

New Zealand Journal of Botany (quarterly/S)

+ News From Hoyt Arboretum (monthly/G)

Nordic Journal of Botany (6 X per yr/S)

Norfolk Botanical Garden Society Newsletter. A Monthly  
Newsletter of Tidewater Gardening (monthly/G)

**North American Lily Society.** Quarterly Bulletin  
 (quarterly/S)

+ **Notes From the Director.** USDA (bimonthly/G)

Notes from the Royal Botanical Garden, Edinburgh  
 (irregular/S)

Nursery Manager (monthly/G)

+ Old Westbury Gardens News (quarterly/G)

Pacific Horticulture (quarterly/S)

Parks. International Union for Conservation of Nature & Natural Resources. (quarterly/G)

+ PBA Newsletter (monthly/G)

+ **Pennsylvania Horticultural Society.** PHS News (monthly/G)

Pépinieristes, Horticulteurs et Maraîchers. (see Revue Horticole)

Phytopathology (monthly/G)

Plant Breeding Reviews (annual/S)

Plant Disease (monthly/G)

Plant Genetic Resources Newsletter (quarterly/G)

Plant Growth Regulator Abstracts (monthly/S)

Plant Life (see Herbertia)

+ Plant Propagator (quarterly/G)

+ Plant Science Bulletin (6 X per yr/S)

Plants & Gardens. Brooklyn Botanic Garden Record  
 (quarterly/S)

Plants & Garden News. Brooklyn Botanic Garden  
 (quarterly/S)

Plants and the Landscape (quarterly/S)

Plantsmen (quarterly/S)

+ Potomac Basin Reporter ( /G)

+ **Potomac Chrysanthemum Society.** Mum Memo (monthly/G)

- + Potomac Rose Society. Newsletter (10 X per yr/G)
  - Principes. International Palm Society (quarterly/S)
  - Proceedings of SNA Research Conference (annual/G)
- Public Garden. American Association of Botanical Gardens and Arboreta. (quarterly/S)
  - Quarterly Journal of Forestry (quarterly/S)
- + Region 3 Newsletter. American Hemerocallis Society (semi-annual/S)
  - Revue Horticole. Pepinieristes, Horticulteurs et Maraîchers (10 X per yr/S)
  - Rhododendron. Australian Rhododendron Society (quarterly/S)
  - Rhodora (quarterly/S)
  - Sanctuary. Massachusetts Audubon Society (9 X per yr/G)
  - Science Council of Japan. Recent Progress of Natural Sciences in Japan (annual/G)
- + Secrest Arboretum Notes (quarterly/G)
  - Seed List. U.S. National Arboretum (annual/G)
  - Shade Tree (monthly/G)
  - Shumi-no-engei (monthly/G)
  - SIDA: Contributions to Botany (semi-annual/S)
  - Silvae Genetica (bimonthly/S)
  - Smithsonian Contributions to Botany (irregular/G)
- + Soil & Water Conservation News. USDA (monthly/G)
  - Southern California Camellia Society. (see Camellia Review)
  - Southern Nurseryman's Association (see Proceedings of SNA...)
  - Systematic Botany (quarterly/G)
  - Taxon. International Association for Plant Taxonomy (quarterly/G)

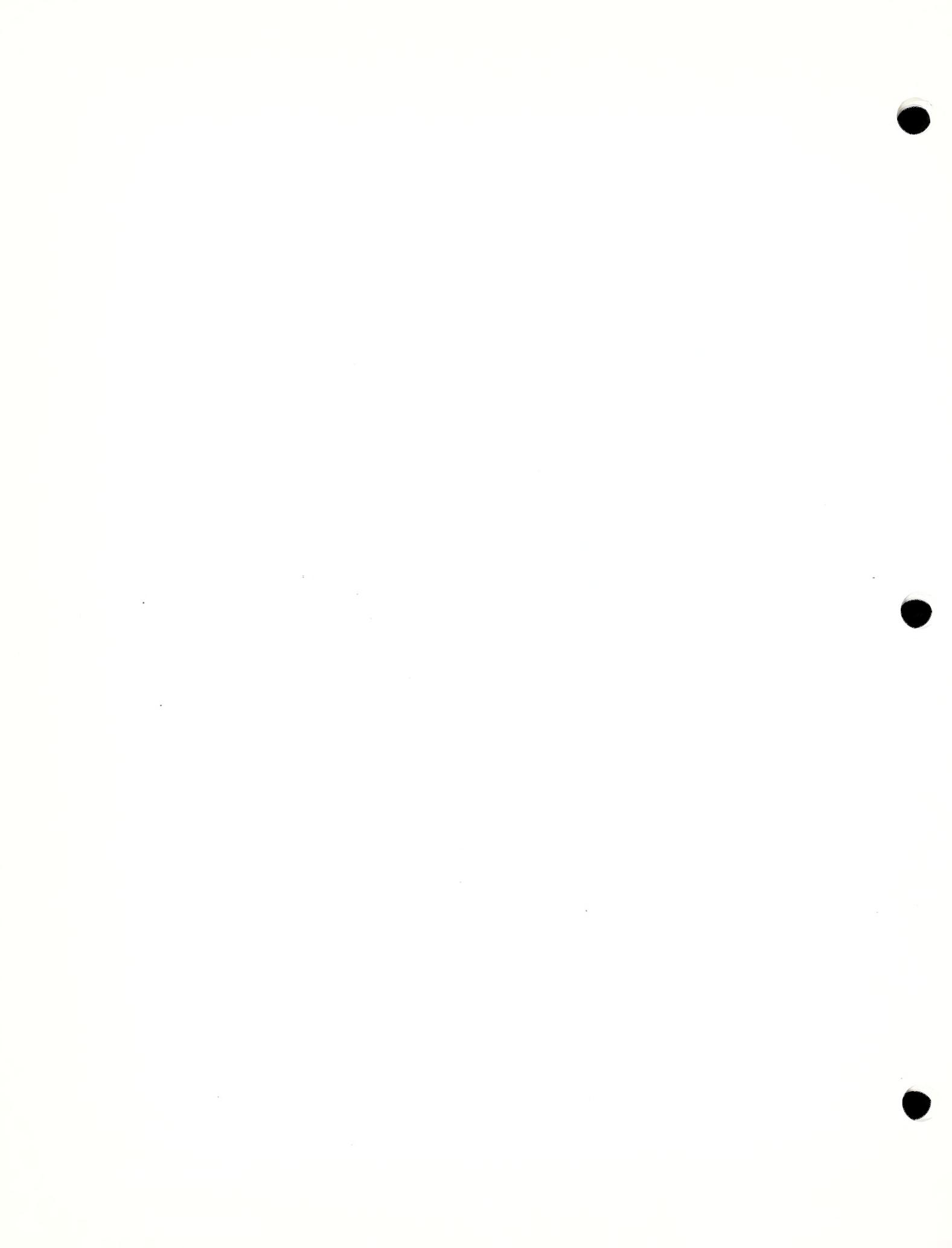
Telopea (irregular/G)

+ Tennessee Nursery Digest (monthly/G)  
Torrey Botanical Club (see Bulletin of the...)  
Ulasylva. FAO. UN (quarterly/G)  
United States Department of Agriculture (see under name  
of publication)

+ University of Tennessee Arboretum Society News Bulletin  
(bimonthly/G)  
Waimea Arboretum & Botanical Garden, Notes from  
(semi-annual/G)  
Weeds, Trees & Turf (monthly/G)  
Willdenowia (semi-annual/G)  
Yearbook of Agriculture. USDA (annual/G)  
Yearbook of Forest Products. FAO (annual/G)

(frequency/G=gift, S=subscription)

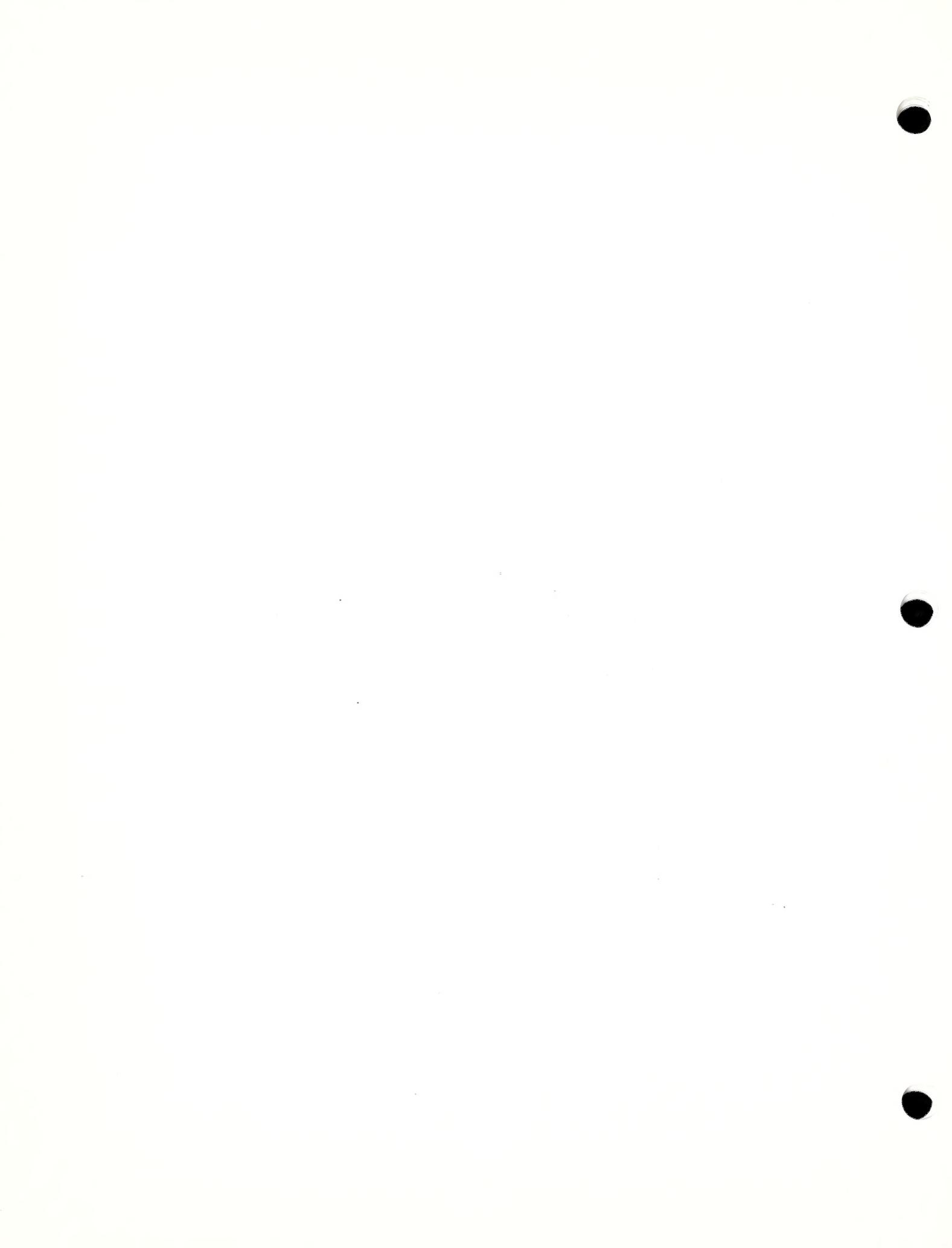
March 1987



**U.S. NATIONAL ARBORETUM WEATHER DATA**  
**1986**

<u>MONTH</u>	<u>MAX. °F</u>		<u>MIN. °F</u>		<u>PRECIPITATION</u>	
		<u>Norm.</u> <sup>a</sup>		<u>Norm.</u> <sup>a</sup>	<u>inches</u>	<u>Norm.</u> <sup>a</sup>
January	68	80	8	0	3.27	2.92
February	67	82	15	-1	18.77	2.76
March	85	91	12	9	0.80	2.48
April	83	94	33	22	3.46	3.21
May	92	96	34	25	0.90	3.85
June	91	100	43	44	2.84	3.92
July	94	104	51	50	5.02	4.05
August	93	102	42	46	4.86	5.30
September	93	102	42	33	1.47	3.42
October	90	94	30	20	2.12	2.75
November	76	87	16	15	5.82	3.14
December	61	74	14	5	5.20	3.20
12 months	94	104	8	0	54.53	41.00

<sup>a</sup> Means for 1946-1970



## PLANT DISTRIBUTION PROGRAMS

The National Arboretum historically has exchanged plant material with botanic gardens, arboreta, universities, nurseries, and other institutions conducting education or research programs with woody plants. The program was reduced drastically in 1986 due to reassignment of personnel.

The following distributions took place in 1986:

1) Index Seminum

168 accessions offered, 125 institutions in 36 countries responded, 1,832 packets of seed sent.

2) General Plant Material Requests

103 requests honored

768 plants sent

782 cuttings sent

1,552 scions sent

34 divisions sent

122 packets of seed sent

Due to the reassignment of Gardens and Collections Unit support staff at the greenhouse to the Research Unit at the greenhouse, the following established programs administered by the Gardens and Collections Unit were suspended in 1986:

1) General Plant Distribution

To: 100 arboreta, botanic gardens and research institutions.

Featuring: Documented species material resulting from plant explorations and select cultivated material not readily available.

2) Special Distribution

To: 100 arboreta, botanic gardens and research institutions.

Featuring: U.S. National Arboretum Introductions for public display purposes at these institutions.

Current backlog of 7 National Arboretum introductions from 1986 not distributed to these institutions. (In 1987 there will be 12 additional USNA releases).

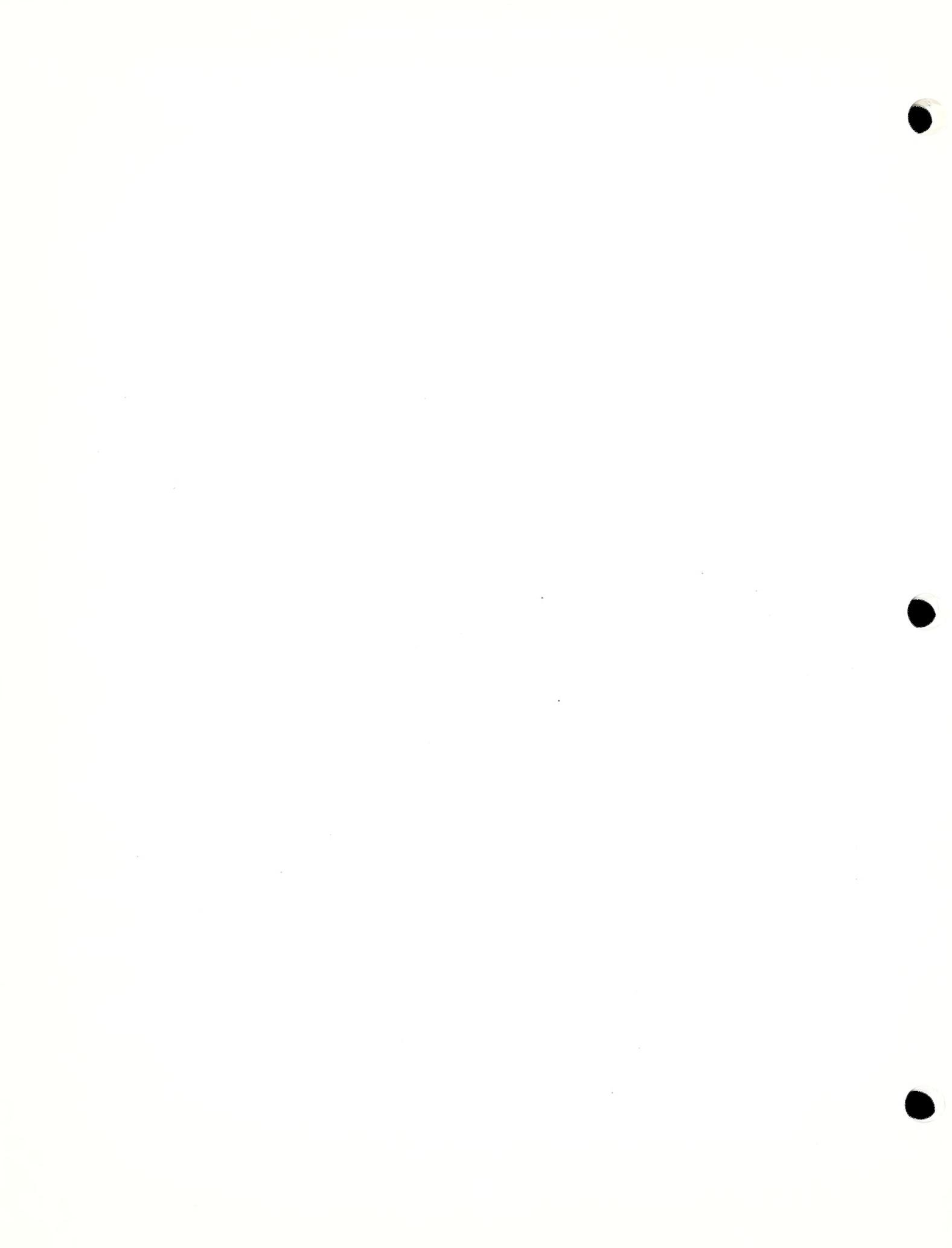
3) Commercial Nursery Distribution

To: 50 wholesale propagating nurseries selected on a geographic basis servicing the nursery trade.

Featuring: Plants not currently in the nursery trade and with a strong commercial potential.

The cost to reinstate these vital programs and to provide the required support for the efficient management of plant material at the greenhouse for the Gardens and Collections Unit (Curators now being used):

Bio Technician GS 5-7	\$18,000
.25 time plant distribution	\$ 4,500
.75 time greenhouse support	\$13,500



**U.S. NATIONAL ARBORETUM**  
**1986 Plant Accessions**

NA #	Plant Name	Date Rec.
56452	<i>Abeliophyllum distichum</i>	1/03/86
56453	<i>Abeliophyllum distichum</i> f. <i>lilacinum</i>	1/03/86
57611	<i>Abies concolor</i> 'Compacta'	4/21/86
57612	<i>Abies concolor</i> 'Gables Weeping'	4/21/86
57427	<i>Abies fargesii</i> var. <i>faxoniana</i>	3/24/86
57428	<i>Abies nephrolepis</i>	3/24/86
57429	<i>Abies squamata</i>	3/24/86
56698	<i>Acer buergerianum</i>	11/ /85
57000	<i>Acer buergerianum</i>	10/18/85
56995	<i>Acer buergerianum</i> 'Koshi-miyasama'	10/18/85
56998	<i>Acer buergerianum</i> 'Mino-yatsubusa'	10/18/85
56997	<i>Acer buergerianum</i> 'Wako-nishiki'	10/18/85
58298	<i>Acer carpinifolium</i>	12/01/86
56633	<i>Acer ginnala</i>	11/ /85
57387	<i>Acer hyrcanum</i>	3/24/86
57417	<i>Acer hyrcanum</i>	3/24/86
56996	<i>Acer japonicum</i> 'Machi-yoi'	10/18/85
57388	<i>Acer monspessulanum</i>	3/24/86
58265	<i>Acer palmatum</i> 'Atropurpureum Novum'	11/19/86
58266	<i>Acer palmatum</i> 'Atropurpureum Superbum'	11/19/86
58267	<i>Acer palmatum</i> 'Burgundy Lace'	11/19/86
58268	<i>Acer palmatum</i> 'Butterfly'	11/19/86
57793	<i>Acer palmatum</i> 'Corallinum'	3/22/86
57584	<i>Acer palmatum</i> 'Dr. Baker'	12/23/85
58269	<i>Acer palmatum</i> 'Kagiri Nishiki'	11/19/86
58270	<i>Acer palmatum</i> 'Oregon Sunset'	11/19/86
58271	<i>Acer palmatum</i> 'Pixie'	11/19/86
58289	<i>Acer palmatum</i> 'Sangokaku'	02/24/86
58272	<i>Acer palmatum</i> 'Sherwood Flame'	11/19/86
58273	<i>Acer palmatum</i> 'Trompenburg'	11/19/86
57694	<i>Acer platanoides</i> 'Columnare'	4/ /85
57695	<i>Acer platanoides</i> 'Crimson King'	4/ /85
57696	<i>Acer platanoides</i> 'Globosum'	4/ /85
57697	<i>Acer platanoides</i> 'Green Lace'	4/ /85
57698	<i>Acer platanoides</i> 'Jade Glen'	4/ /85
57699	<i>Acer platanoides</i> 'Parkway'	4/ /75
58299	<i>Acer pycanthum</i>	12/01/86
57700	<i>Acer rubrum</i> 'October Glory'	4/ /85
57701	<i>Acer rubrum</i> 'Red Sunset'	4/ /85
57770	<i>Acer rubrum</i> /selection/	6/05/86
57771	<i>Acer rubrum</i> /selection/	6/05/86
57772	<i>Acer rubrum</i> /selection/	6/05/86
57773	<i>Acer rubrum</i> /selection/	6/05/86
57774	<i>Acer rubrum</i> /selection/	6/05/86
57775	<i>Acer rubrum</i> /selection/	6/05/86
57776	<i>Acer rubrum</i> /selection/	6/05/86
57001	<i>Acer shirasawanum</i> 'Juni-hitoe'	10/18/85
56999	<i>Acer sieboldianum</i> var. <i>microphyllum</i>	10/18/85

57002	<i>Acer sieboldianum</i> var. <i>microphyllum</i> 'Sode-no-uchi'	10/18/85
58016	<i>Acer triflorum</i>	9/24/86
57683	<i>Aconitum delphiniiifolium</i> subsp. <i>delphiniiifolium</i>	5/16/86
57061	<i>Aconitum japonicum</i>	10/28/85
58283	<i>Aconitum napellus</i>	11/21/86
56652	<i>Aconitum pulchellum</i>	11/ /85
58390	<i>Aconitum reclinatum</i>	10/ /86
57452	<i>Aconitum uncinatum</i>	2/ 1/86
58391	<i>Aconitum uncinatum</i>	10/ /86
56968	<i>Acorus gramineus</i>	10/16/85
57893	<i>Actaea acuminata</i>	7 03/86
57865	<i>Actaea pachypoda</i>	6/12/86
56859	<i>Actaea pachypoda</i>	2/10/86
56867	<i>Actaea pachypoda</i> f. <i>rubrocarpa</i>	2/10/86
57260	<i>Actaea rubra</i>	1/15/86
57866	<i>Actaea rubra</i>	6/12/86
58339	<i>Actaea rubra</i>	12/ 1/86
56868	<i>Actaea rubra</i>	2/10/86
56869	<i>Actaea rubra</i> f. <i>neglecta</i>	2/10/86
57261	<i>Actaea rubra</i> f. <i>neglecta</i>	1/15/86
56649	<i>Actinidia arguta</i>	11/ /85
57403	<i>Actinidia callosa</i>	3/ /86
57404	<i>Actinidia coriacea</i>	3/ /86
57687	<i>Actinidia kolomikta</i>	5/19/86
57389	<i>Actinidia lanceolata</i>	3/ /86
56688	<i>Actinidia polygama</i>	11/ /85
56973	<i>Actinidia</i> sp.	10/17/85
56737	<i>Actinodaphne lancifolia</i>	11/ /85
56765	<i>Actinodaphne lancifolia</i>	11/ /85
57131	<i>Adenandra villosa</i>	11/16/85
57366	<i>Adenophora confusa</i>	3/13/86
57645	<i>Adenophora liliifolia</i>	4/20/86
57739	<i>Adenophora nikoensis</i>	5/29/86
57740	<i>Adenophora remotiflora</i>	5/29/86
57020	<i>Adenophora</i> sp.	10/20/85
57741	<i>Adenophora triphylla</i>	5/29/86
57894	<i>Adenophora triphylla</i> var. <i>japonica</i>	7/03/86
57013	<i>Adiantum pedatum</i>	10/20/85
57262	<i>Adiantum pedatum</i> var. <i>aleuticum</i>	1/15/86
57421	<i>Adiantum pedatum</i> var. <i>aleuticum</i>	3/24/86
57723	<i>Aesculus flava</i>	5/27/86
58255	<i>Aethionema</i> x <i>warleyense</i>	10/30/86
56798	<i>Agarista populifolia</i>	12/14/85
57966	<i>Agastache breviflora</i>	4/30/86
56429	<i>Agastache coccinea</i>	1/05/86
57967	<i>Agastache mexicana</i>	4/30/86
56430	<i>Agastache mexicana</i> 'Toronjil Morado'	1/05/86
58111	<i>Agastache rupestris</i>	6/ 1/86
56694	<i>Ainsliaea acerifolia</i>	11/ /85
57367	<i>Ajuga reptans</i> 'Bronze Beauty'	3/13/86
56632	<i>Akebia quinata</i>	11/ /85
56653	<i>Akebia quinata</i>	11/ /85
56658	<i>Akebia quinata</i>	11/ /85
56964	<i>Akebia quinata</i>	10/16/85

57742	<i>Akebia trifoliata</i>	5/29/86
57873	<i>Akebia trifoliata</i>	6/25/86
56471	<i>Alangium platanifolium</i>	11/ /85
56485	<i>Alangium platanifolium</i> var. <i>macrophyllum</i>	11/ /85
56598	<i>Albizia coreana</i>	11/ /85
56599	<i>Albizia coreana</i>	11/ /85
56600	<i>Albizia coreana</i>	11/ /85
56601	<i>Albizia coreana</i>	11/ /85
56602	<i>Albizia coreana</i>	11/ /85
56603	<i>Albizia coreana</i>	11/ /85
56604	<i>Albizia coreana</i>	11/ /85
57797	<i>Aletris farinosa</i>	4/30/86
56870	<i>Aletris farinosa</i>	2/10/86
58284	<i>Alliaria petiolata</i>	11/21/86
58237	<i>Allium caeruleum</i>	11/06/86
58319	<i>Allium giganteum</i>	10/28/86
57065	<i>Allium moly</i>	10/30/85
58238	<i>Allium moly</i>	11/06/86
58320	<i>Allium moly</i>	10/28/86
58207	<i>Allium senecens</i> var. <i>glaucum</i>	03/13/86
56560	<i>Allium taquetii</i>	11/ /85
57006	<i>Allium thunbergii</i>	10/18/85
57763	<i>Allium thunbergii</i> 'Ozawa'	6/04/86
57453	<i>Allium tricoccum</i>	2/ 1/86
57724	<i>Allium tricoccum</i>	5/27/86
57374	<i>Alnus cordata</i>	3/ /86
57418	<i>Alnus cordata</i>	3/24/86
58304	<i>Alnus sieboldiana</i>	12/01/86
57361	<i>Ampelopsis brevipedunculata</i>	unk.
57379	<i>Ampelopsis brevipedunculata</i>	unk.
57263	<i>Amsonia ciliata</i>	1/15/86
58230	<i>Amsonia ciliata</i>	11/14/86
57422	<i>Andromeda glaucophylla</i>	3/24/86
57602	<i>Andropogon gerardii</i>	4/18/86
58345	<i>Andropogon glomeratus</i>	12/ 1/86
57603	<i>Andropogon scoparius</i>	4/18/86
56834	<i>Andropogon</i> sp.	12/14/85
56835	<i>Andropogon</i> sp.	12/14/85
56846	<i>Andropogon</i> sp.	12/14/85
57725	<i>Andropogon virginicus</i>	5/27/86
58346	<i>Andropogon virginicus</i>	12/ 1/86
57585	<i>Anemone canadensis</i>	4/18/86
58388	<i>Anemone canadensis</i>	9/ /86
58331	<i>Anemone patens</i>	12/ 1/86
57764	<i>Anemonella thalictroides</i>	6/04/86
57454	<i>Angelica triquinata</i>	2/ 1/86
57134	<i>Anigozanthos pulcherrima</i>	11/16/85
57133	<i>Anigozanthos rufus</i>	11/16/85
57726	<i>Antennaria plantaginifolia</i>	5/27/86
56718	<i>Aphananthe aspera</i>	11/ /85
57365	<i>Apios priceana</i>	3/17/86
57870	<i>Apium graveolens</i>	6/24/86
57212	<i>Aquilegia flabellata</i>	11/17/85
57264	<i>Aquilegia flabellata</i>	1/15/86

57895	Aquilegia flabellata	7/03/86
57213	Aquilegia flabellata 'Alba'	11/17/85
57765	Aquilegia flabellata 'Alba'	6/04/86
57215	Aquilegia flabellata 'Nana-yezoense'	11/17/85
57214	Aquilegia flabellata 'Rosea'	11/17/85
56860	Aralia hispida	2/10/86
57853	Aralia racemosa	6/12/86
58347	Aralia racemosa	12/ 1/86
57762	Araucaria angustifolia	6/03/86
57978	Araucaria heterophylla	6/25/86
57094	Ardisia crispa	11/ 7/85
57798	Arenaria groenlandica	4/30/86
58256	Arenaria verna 'Aurea'	10/30/86
56651	Arisaema amurense	11/ /85
56686	Arisaema amurense	11/ /85
57891	Arisaema amurense	7/03/86
57896	Arisaema amurense	7/03/86
57907	Arisaema angustatum	7/03/86
57455	Arisaema dracontium	2/ 1/86
57047	Arisaema japonicum	10/26/85
57892	Arisaema japonicum	7/03/86
57897	Arisaema japonicum	7/03/86
57225	Arisaema kiushianum	11/17/85
57743	Arisaema peninsulae	5/29/86
56534	Arisaema ringens	11/ /85
56654	Arisaema ringens	11/ /85
56685	Arisaema ringens	11/ /85
56529	Arisaema robustum	11/ /85
56687	Arisaema robustum	11/ /85
57265	Arisaema triphyllum /large form/	1/15/86
57266	Arisaema triphyllum /white veined/	1/15/86
56938	Aristolochia tomentosa	12/ 4/85
58222	Artemisia dracunculus /French Tarragon/	09/12/86
57883	Artemisia lactiflora	6/26/86
57871	Artemisia ludoviciana	6/24/86
58405	Artemisia pamirica	1/ /86
57456	Aruncus dioicus	2/ 1/86
57898	Aruncus dioicus var. kamtschaticus	7/03/86
57799	Asarum arifolium	4/30/86
57847	Asarum canadense	6/01/86
56662	Asarum maculatum	11/ /85
58392	Asarum minus	10/ /86
56474	Asarum sp.	11/ /85
56421	Asclepias tuberosa	10/12/85
57586	Asclepias tuberosa	4/18/86
56861	Asclepis amplexicaulis	2/10/86
56459	Aspidistra elatior 'Akebono'	11/ /85
58382	Asplenium montanum	8/ /86
58384	Asplenium platyneuron	8/ /86
57267	Asplenium ruta-muraria	1/15/86
57268	Asplenium trichomanes	1/15/86
58086	Aster 'Professor Kippenburg'	10/ 6/86
58087	Aster 'Snow Flurry'	10/ 6/86
58375	Aster acuminatus	8/ /86

57098	Aster ageratoides var. ovatus	11/ 8/85
57606	Aster azureus	4/18/86
57457	Aster grandiflorus	2/ 1/86
58376	Aster novi-belgii	8/ /86
58085	Aster novi-belgii 'Jenny'	10/ 6/86
56871	Aster patens	2/10/86
58132	Aster schreberi	9/21/86
58348	Aster schreberi	12/ 1/86
56872	Aster spectabilis	2/10/86
57021	Aster tataricus	10/20/85
58349	Aster umbellatus	12/ 1/86
58377	Aster umbellatus	8/ /86
58133	Aster undulatus	9/21/86
56873	Astible biternata	2/10/86
57390	Asilbe grandis	3/ /86
58009	Asilbe japonica 'Deutschland'	9/30/86
58088	Asilbe x arendsi 'Erica'	10/ 6/86
56874	Astragalus canadensis	2/10/86
57423	Athyrium filix-femina var. michauxii	3/24/86
57458	Athyrium pycnocarpon	2/ 1/86
57800	Athyrium pycnocarpon	4/30/86
58350	Athyrium pycnocarpon	12/ 1/86
56916	Athyrium thelypteroides	2/10/86
58285	Atropa belladonna var. lutea	11/21/86
57780	Baccharis glomeruliflora	12/14/86
57459	Baptisia alba	2/ 1/86
56875	Baptisia leucantha	2/10/86
57587	Baptisia leucophaea	4/18/86
58135	Baptisia tinctoria	9/ 4/86
56776	Befaria racemosa	12/14/85
57553	Befaria racemosa	4/15/86
58073	Begonia grandis	10/30/86
58193	Berberis verruculosa	10/29/86
57405	Berchemia lineata	3/ /86
57406	Berchemia polyphylla	3/ /86
56521	Berchemia racemosa var. magna	11/ /85
57830	Berchemia scandens	5/01/86
57398	Berchemis polyphylla var. leioclada	3/ /86
58074	Bergenia cordifolia	10/30/86
57649	Betula pubescens	unk.
57460	Bidens polylepis	2/ 1/86
57744	Boehmeria biloba	5/29/86
57745	Boehmeria nipononivea	5/29/86
57746	Boehmeria sieboldiana	5/29/86
58127	Boehmeria sp.	11/ /86
56542	Boehmeria spicata	11/ /85
57269	Bokinia aconitifolia	1/15/86
57979	Bougainvillea glabra	6/25/86
57604	Bouteloua curtipendula	4/18/86
57657	Bouteloua gracilis	5/ 2/86
56438	Bouvardia ternifolia	12/10/85
57801	Boykinia aconitifolia	4/30/86
58351	Boykinia aconitifolia	12/ 1/86
58184	Brunnera macrophylla	10/16/86

57067	Bulbinella sp.	10/30/85
57950	Buxus californica	8/15/86
56473	Buxus microphylla var. koreana	11/ /85
56475	Buxus microphylla var. koreana	11/ /85
57951	Buxus sempervirens 'Jensen'	8/15/86
57952	Buxus sempervirens 'Nana Compacta'	8/15/86
57953	Buxus sempervirens /sdlg. of 'Arborescens' /	8/15/86
58166	Cajophora lateritia	10/09/86
57658	Calamagrostis x acutiflora 'Stricta'	5/ 2/86
58089	Calamagrostis x acutiflora 'Stricta'	10/ 6/86
56876	Calla palustris	2/10/86
57270	Calla palustris	1/15/86
57068	Calliandra emarginata	10/30/85
56951	Callicarpa americana	/ /86
56862	Caltha palustris	2/10/86
57368	Caltha palustris	3/13/86
58199	Caltha palustris 'Alba'	11/03/86
58200	Caltha palustris 'Flore-Plena'	11/03/86
57943	Calycanthus floridus	4/ 7/82
58189	Camassia quamash	10/21/86
56440	Camellia hiemalis 'Bonanza'	12/10/85
56439	Camellia hiemalis 'Shishigashira'	12/10/85
56470	Camellia japonica	11/ /85
57949	Camellia japonica 'Mrs. David Reed'	8/19/86
57115	Camellia japonica /Higo/ 'Fuji'	11/13/85
57113	Camellia japonica /Higo/ 'Kabai'	11/13/85
57117	Camellia japonica /Higo/ 'Sakuragari'	11/13/85
57116	Camellia japonica /Higo/ 'Shin-tsukasa-nishiki'	11/13/85
57114	Camellia japonica /Higo/ 'Yamato-nishiki'	11/13/85
57112	Camellia japonica /Higo/ 'Osaraku'	11/13/85
57026	Camellia sasanqua 'Asakura'	10/24/85
57954	Camellia sasanqua 'Hana Jima'	8/19/86
57119	Camellia sasanqua /Higo/ 'Akebono'	11/13/85
57122	Camellia sasanqua /Higo/ 'Enishi'	11/13/85
57125	Camellia sasanqua /Higo/ 'Fuji-no-yuki'	11/13/85
57124	Camellia sasanqua /Higo/ 'Irihi-no-umi'	11/13/85
57118	Camellia sasanqua /Higo/ 'Nara-no-miyako'	11/13/85
57126	Camellia sasanqua /Higo/ 'Sakura-zukuyo'	11/13/85
57120	Camellia sasanqua /Higo/ 'Sekiyo'	11/13/85
57121	Camellia sasanqua /Higo/ 'Setsu-san'	11/13/85
57123	Camellia sasanqua /Higo/ 'Shikishima'	11/13/85
57127	Camellia sasanqua /Higo/ 'Akeyukusora'	11/13/85
57461	Campanula divaricata	2/ 1/86
57802	Campanula divaricata	4/30/86
56954	Campanula portenschlagiana	2/ 5/86
57216	Campanula punctata 'Alba'	11/17/85
56877	Campanula rotundifolia	2/10/86
57271	Campanula rotundifolia 'Alba'	1/15/86
56463	Campsis grandiflora	11/ /85
56512	Campsis grandiflora	11/ /85
56513	Campsis grandiflora	11/ /85
56519	Campsis grandiflora	11/ /85
56522	Campsis grandiflora	11/ /85
57272	Comptisorus rhizphyllus	1/15/86

57438	<i>Campylotropis hirtella</i>	3/24/86
57439	<i>Campylotropis polyantha</i>	3/24/86
58172	<i>Capsicum pubescens</i>	10/15/86
57613	<i>Caragana arborescens 'Pendula'</i>	4/21/86
57614	<i>Caragana arborescens 'Walkeri'</i>	4/21/86
58183	<i>Caragana pekinensis</i>	09/24/86
56454	<i>Caragana sinica</i>	1/03/86
57727	<i>Carex grayi</i>	5/27/86
56955	<i>Carex morrowii var. lax /variegated sel./</i>	2/ 5/86
58075	<i>Carex morrowii var. morrowii 'Variegata'</i>	10/30/86
57053	<i>Carex sp.</i>	10/27/85
57659	<i>Carex sp.</i>	5/ 2/86
57378	<i>Carmona microphylla</i>	unk.
57980	<i>Carmona microphylla</i>	6/25/86
57981	<i>Carmona microphylla</i>	6/25/86
57982	<i>Carmona microphylla</i>	6/25/86
57983	<i>Carmona microphylla</i>	6/25/86
57984	<i>Carmona microphylla</i>	6/25/86
57985	<i>Carmona microphylla</i>	6/25/86
57986	<i>Carmona microphylla</i>	6/25/86
57987	<i>Carmona microphylla</i>	6/25/86
57988	<i>Carmona microphylla</i>	6/25/86
57803	<i>Carpephorus bellidifolius</i>	4/30/86
56713	<i>Carpinus coreana</i>	11/ /85
56731	<i>Carpinus coreana</i>	11/ /85
57407	<i>Carpinus fangiana</i>	3/ /86
57408	<i>Carpinus poluneara</i>	3/ /86
56650	<i>Carpinus tschonoskii</i>	11/ /85
56711	<i>Carpinus tschonoskii</i>	11/ /85
57430	<i>Carya cathayensis</i>	3/24/86
58090	<i>Caryopteris clandonensis 'Blue Mist'</i>	10/ 6/86
56569	<i>Caryopteris incana</i>	11/ /85
56572	<i>Caryopteris incana</i>	11/ /85
56588	<i>Caryopteris incana</i>	11/ /85
57462	<i>Cassandra calyculata</i>	2/ 1/86
57650	<i>Cassia marilandica</i>	5/ 1/86
56566	<i>Castanopsis cuspidata var. sieboldii</i>	11/ /85
56583	<i>Castanopsis cuspidata var. sieboldii</i>	11/ /85
57375	<i>Catalpa bignonioides</i>	3/ /86
57419	<i>Catalpa bignonioides</i>	3/24/86
57376	<i>Catalpa ovata</i>	3/ /86
57420	<i>Catalpa ovata</i>	3/24/86
57377	<i>Catalpa speciosa</i>	3/ /86
57867	<i>Caulophyllum thalictroides</i>	6/12/86
56935	<i>Cedrela odorata</i>	2/ /86
57446	<i>Cedrela sinensis</i>	2/ /86
57447	<i>Cedrela sinensis</i>	2/ /86
57448	<i>Cedrela sinensis</i>	2/ /86
57449	<i>Cedrela sinensis</i>	2/ /86
57450	<i>Cedrela sinensis</i>	2/ /86
57451	<i>Cedrela sinensis</i>	2/ /86
56416	<i>Cedrus deodara /twisted growth/</i>	1/06/86
56618	<i>Celastrus flagellaris</i>	11/ /85
56764	<i>Celtis biondii var. heterophylla</i>	11/ /85

57989	<i>Celtis sinensis</i>	6/25/86
57990	<i>Celtis sinensis</i>	6/25/86
58295	<i>Celtis sinensis</i> var. <i>japonica</i>	12/01/86
57651	<i>Centaurea cyanus</i>	5/ 1/86
57463	<i>Centaurea maculosa</i>	2/ 1/86
57169	<i>Cephalotaxus harringtonia</i> 'Ogon'	11/17/85
56509	<i>Cephalotaxus koreana</i>	11/ /85
56750	<i>Cephalotaxus koreana</i>	11/ /85
58091	<i>Ceratostigma plumbaginoides</i>	10/ 6/86
57681	<i>Cercidiphyllum magnificum</i> f. <i>pendulum</i>	unk.
57096	<i>Cercis chinensis</i>	11/ 7/85
57003	<i>Chaenomeles japonica</i>	10/18/85
57004	<i>Chaenomeles japonica</i> f. <i>alba</i>	10/18/85
57615	<i>Chamaecyparis lawsoniana</i> 'Rijnhof'	4/21/86
57617	<i>Chamaecyparis obtusa</i> /Elmwood 75-35/	4/21/86
57616	<i>Chamaecyparis obtusa</i> /Elmwood Gold/	4/21/86
57618	<i>Chamaecyparis pisifera</i> 'Tsukuma'	4/21/86
57619	<i>Chamaecyparis thyoides</i> 'Little Jamie'	4/21/86
56777	<i>Chamaedaphne calyculata</i>	12/14/85
57684	<i>Chamaedaphne calyculata</i>	5/16/86
57804	<i>Chaptalia tomentosa</i>	4/30/86
58393	<i>Cheilanthes tomentosa</i>	10/ /86
58352	<i>Chelone cuthbertii</i>	12/ 1/86
58353	<i>Chelone obliqua</i>	12/ 1/86
57884	<i>Chenopodium botrys</i>	6/26/86
58292	<i>Chionanthus retusus</i>	12/01/86
56939	<i>Chionanthus virginicus</i>	12/ 4/85
58226	<i>Chionodoxa luciliae</i> 'Gigantea'	11/06/86
57805	<i>Chondrophora nudata</i>	4/30/86
57968	<i>Chrysactinia mexicana</i>	4/30/86
57092	<i>Chrysanthemum</i> 'Jiryu'	11/ 5/85
57110	<i>Chrysanthemum</i> /Higo/ 'Chiyonokotobuki'	11/12/85
57109	<i>Chrysanthemum</i> /Higo/ 'Hatsu-yuki'	11/12/85
57108	<i>Chrysanthemum</i> /Higo/ 'Kinsen'	11/12/85
57107	<i>Chrysanthemum</i> /Higo/ 'Mado-no-yuki'	11/12/85
56428	<i>Chrysanthemum cinerariifolium</i>	7/17/85
57253	<i>Chrysanthemum coccineum</i> /Robinson Mixed/	10/23/85
57048	<i>Chrysanthemum makinoi</i>	10/26/85
57072	<i>Chrysanthemum makinoi</i> f. <i>tubulosum</i>	10/31/85
58300	<i>Chrysanthemum repandum</i> var. <i>spontaneum</i>	12/01/86
58128	<i>Chrysanthemum segatum</i>	9/ /86
57093	<i>Chrysanthemum</i> sp.	11/ 7/85
56563	<i>Chrysanthemum zawadskii</i> var. <i>alpinum</i>	11/ /85
58185	<i>Chrysogonium virginianum</i>	10/16/86
56956	<i>Chrysogonium virginianum</i> 'Mark Viette'	2/ 5/86
57660	<i>Chrysopogon nutans</i>	5/ 2/86
58201	<i>Chrysopsis</i> 'Golden Sunshine'	11/03/86
57464	<i>Cimicifuga americana</i>	2/ 1/86
56696	<i>Cimicifuga davurica</i>	11/ /85
58076	<i>Cimicifuga racemosa</i>	10/30/86
58257	<i>Cimicifuga simplex</i>	10/30/86
56510	<i>Cinnamomum japonicum</i>	11/ /85
56728	<i>Cinnamomum japonicum</i>	11/ /85
57777	<i>Cinnamomum zeylanicum</i>	6/27/86

58129	<i>Citrullus colocynthis</i>	9/ /86
57273	<i>Clematis addisonii</i>	1/15/86
57789	<i>Clematis alpina 'Frances Rivis'</i>	3/22/86
57465	<i>Clematis crispa</i>	2/ 1/86
57874	<i>Clematis japonica</i>	6/25/86
57786	<i>Clematis macropetala 'White Moth'</i>	3/22/86
56974	<i>Clematis ochotensis</i>	10/17/85
58136	<i>Clematis paniculata</i>	
57060	<i>Clematis</i> sp.	10/28/85
57875	<i>Clematis stans</i>	6/25/86
57274	<i>Clematis viorna</i>	1/15/86
57466	<i>Clematis viorna</i>	2/ 1/86
57554	<i>Clethra accuminata</i>	4/15/86
57555	<i>Clethra accuminata</i>	4/15/86
56778	<i>Clethra acuminata</i>	12/14/85
57556	<i>Clethra alnifolia</i>	4/15/86
57149	<i>Clethra barbinervis</i>	11/17/85
57137	<i>Cleyera japonica</i>	11/17/85
56779	<i>Cliftonia monophylla</i>	12/14/85
57557	<i>Cliftonia monophylla</i>	4/15/86
56878	<i>Clintonia umbellulata</i>	2/10/86
57467	<i>Clitoria mariana</i>	2/ 1/86
56460	<i>Codonopsis lanceolata</i>	11/ /85
57876	<i>Codonopsis ussuriensis</i>	6/25/86
57885	<i>Coleus amboinicus</i>	6/26/86
58208	<i>Coleus amboinicus</i> /variegated/	08/15/86
56780	<i>Conradina canescens</i>	12/14/85
56431	<i>Conradina canescens</i> /green form/	1/05/86
56432	<i>Conradina grandiflora</i>	1/05/86
58286	<i>Consolida ambigua</i>	11/21/86
56863	<i>Coptis groenlandica</i>	2/10/86
57275	<i>Coptis groenlandica</i>	1/15/86
57424	<i>Coptis groenlandica</i>	3/24/86
56975	<i>Cordyline 'Dreamy'</i>	10/17/85
57468	<i>Coreopsis auriculata</i>	2/ 1/86
57469	<i>Coreopsis gladiata</i>	2/ 1/86
57470	<i>Coreopsis tinctoria</i>	2/ 1/86
56879	<i>Coreopsis tripteris</i>	2/10/86
57471	<i>Coreopsis verticillata</i>	2/ 1/86
58010	<i>Coreopsis verticillata</i> 'Moonbeam'	9/30/86
57747	<i>Coriaria japonica</i>	5/29/86
57440	<i>Coriaria sinica</i>	3/24/86
57794	<i>Cornus alba 'Westonbirt'</i>	3/22/86
56864	<i>Cornus canadensis</i>	2/10/86
56472	<i>Cornus controversa</i>	11/ /85
56489	<i>Cornus controversa</i>	11/ /85
57955	<i>Cornus florida</i>	1/27/86
56498	<i>Cornus kousa</i>	11/ /85
56555	<i>Cornus kousa</i>	11/ /85
56660	<i>Cornus kousa</i>	11/ /85
57168	<i>Cornus kousa</i>	11/17/85
57143	<i>Cornus kousa</i> 'Gold Star'	11/17/85
57165	<i>Cornus kousa</i> 'Satomi'	11/17/85
57144	<i>Cornus kousa</i> 'Snowboy'	11/17/85

58234	<i>Cornus mas</i>	5/15/80
57397	<i>Cornus officinalis</i>	3/ /86
57778	<i>Cornus sp.</i>	6/03/86
57217	<i>Cornus suecica</i>	11/17/85
56608	<i>Cornus walteri</i>	11/ /85
56674	<i>Cornus walteri</i>	11/ /85
56455	<i>Corylopsis coreana</i>	1/03/86
57391	<i>Corylopsis glandulifera</i> var. <i>hypoglaucia</i>	3/ /86
57838	<i>Corylopsis glandulifera</i> var. <i>hypoglaucia</i>	7/21/86
56940	<i>Cotinus obovatus</i>	12/ 4/85
58194	<i>Cotoneaster 'Streibs Findling'</i>	10/29/86
58092	<i>Crambe cordifolia</i>	10/ 6/86
56781	<i>Crataegus opaca</i>	12/14/85
57620	<i>Crataegus oxyacantha 'Contorta'</i>	4/21/86
58241	<i>Crocus 'Lady Killer'</i>	11/06/86
58321	<i>Crocus 'Queen of the Blues'</i>	10/28/86
58239	<i>Crocus 'Saturnus'</i>	11/06/86
58240	<i>Crocus 'Skyline'</i>	11/06/86
58322	<i>Crocus 'Snow Storm'</i>	10/28/86
58309	<i>Crocus vernus</i> subsp. <i>vernus</i>	11/03/86
58323	<i>Crocus vernus</i> subsp. <i>vernus</i>	10/28/86
56847	<i>Crotalaria spectabilis</i>	12/14/85
56782	<i>Croton alabamensis</i>	12/14/85
58158	<i>Cryptomeria japonica 'Vilmoriniana'</i>	10/08/86
56655	<i>Cudrania tricuspidata</i>	11/ /85
56941	<i>Cunila origanoides</i>	12/ 4/85
58291	<i>Cupressocyparis leylandii</i> x <i>Chamaecyparis nootkatensis</i>	11/24/86
56433	<i>Curcuma domestica</i>	1/05/86
56928	<i>Cycas sp.</i>	1/ /86
57806	<i>Cymophyllum fraseri</i>	4/30/86
56783	<i>Cyrilla racemiflora</i>	12/14/85
56784	<i>Cyrilla racemiflora</i>	12/14/85
56836	<i>Cyrilla racemiflora</i>	12/14/85
57472	<i>Cyrilla racemiflora</i>	2/ 1/86
57558	<i>Cyrilla racemiflora</i>	4/15/86
57559	<i>Cyrilla racemiflora</i>	4/15/86
56917	<i>Cystopteris bulbifera 'Crispa'</i>	2/10/86
57473	<i>Cystopteris protrusa</i>	2/ 1/86
57913	<i>Cystopteris protrusa</i>	7/08/86
58258	<i>Dactylis sp.</i>	10/30/86
57431	<i>Dalbergia hupeana</i>	3/24/86
57441	<i>Dalbergia hupeana</i>	3/24/86
57192	<i>Daphne odora 'Ringmaster'</i>	11/17/85
56490	<i>Daphniphyllum macropodum</i>	11/ /85
56544	<i>Daphniphyllum teijsmannii</i>	11/ /85
58296	<i>Daphniphyllum teijsmannii</i>	12/01/86
56434	<i>Delosperma cooperi</i>	1/05/86
58332	<i>Delphinium cardinale</i>	12/ 1/86
56734	<i>Dendropanax trifidus</i>	11/ /85
57157	<i>Dendropanax trifidus</i>	11/17/85
56547	<i>Dennstaedtia hirsuta</i>	11/ /85
57661	<i>Deschampsia caespitosa 'Goldgehaenge'</i>	5/ 2/86
58209	<i>Dianthus 'Gloriosa'</i>	08/15/86

58210	Dianthus 'Mrs. Sinkins'	08/15/86
58211	Dianthus 'Musgrave Pink'	08/15/86
58259	Dianthus 'Spotti'	10/30/86
57251	Dianthus /hybrids/	10/23/85
57369	Dianthus caryophyllus 'Golden Sun'	3/13/86
56483	Dianthus sinensis	11/ /85
56464	Dianthus superbus var. longicalycinus	11/ /85
57252	Dianthus superbus var. longicalycinus	10/23/85
56420	Dicerandra cornutissima	12/15/85
56419	Dicerandra frutescens	12/15/85
57276	Diervilla lonicera	1/15/86
56976	Diospyros kaki 'Nishi-mura'	10/17/85
57807	Diphylleia cymosa	4/30/86
58303	Disanthus cercidifolius	12/01/86
56880	Disporum lanuginosum	2/10/86
58394	Disporum lanuginosum	10/ /86
57808	Disporum maculatum	4/30/86
56678	Disporum sessile	11/ /85
56881	Dodecatheon jeffreyi	2/10/86
57474	Dodecatheon meadia	2/ 1/86
57588	Dodecatheon meadia	4/18/86
57475	Dracocephalum purpureum	2/ 1/86
56894	Dracocephalum virginianum	2/10/86
56895	Dracocephalum virginianum 'Alba'	2/10/86
58354	Drosera rotundifolia	12/ 1/86
57476	Dryopteris celsa	2/ 1/86
57854	Dryopteris clintoniana	6/12/86
56918	Dryopteris cristata	2/10/86
56919	Dryopteris goldiana	2/10/86
57728	Dryopteris goldiana	5/27/86
57855	Dryopteris intermedia	6/12/86
57477	Dryopteris ludoviciana	2/ 1/86
57856	Dryopteris marginalis	6/12/86
56920	Dryopteris x bottii	2/10/86
56942	Echinacea angustifolia	12/ 4/85
58355	Echinacea laevigata	12/ 1/86
56943	Echinacea pallida	12/ 4/85
57589	Echinacea pallida	4/18/86
56944	Echinacea paradoxa var. paradoxa	12/ 4/85
57590	Echinacea purpurea	4/18/86
56945	Echinacea simulata	12/ 4/85
56517	Echinops setifer	11/ /85
57360	Ehretia microphylla	unk.
56578	Elaeagnus glabra	11/ /85
57139	Enkianthus campanulatus	11/17/85
57140	Enkianthus campanulatus	11/17/85
57141	Enkianthus campanulatus	11/17/85
57142	Enkianthus campanulatus	11/17/85
57156	Enkianthus campanulatus	11/17/85
57208	Enkianthus campanulatus f. sikokianus	11/17/85
57207	Enkianthus campanulatus var. albiflorus	11/17/85
57138	Enkianthus cernuus f. nipponicus	11/17/85
57748	Enkianthus perulatus	5/29/86
57409	Enkianthus queueflorus	3/ /86

57410	<i>Enkianthus serrulatus</i>	3/ /86
57749	<i>Enkianthus subsessilis</i>	5/29/86
56865	<i>Epilobium angustifolium</i>	2/10/86
57729	<i>Epilobium angustifolium</i>	5/27/86
58333	<i>Epilobium angustifolium</i>	12/ 1/86
57054	<i>Epimedium acuminatum</i>	10/27/85
57050	<i>Epimedium diphyllum</i>	10/27/85
57051	<i>Epimedium diphyllum</i>	10/27/85
57018	<i>Epimedium sagittatum</i>	10/20/85
57019	<i>Epimedium sagittatum</i>	10/20/85
57206	<i>Epimedium setosum</i>	11/17/85
57016	<i>Epimedium sp.</i>	10/20/85
57017	<i>Epimedium sp.</i>	10/20/85
58324	<i>Eranthis hyemalis</i>	10/28/86
57478	<i>Eriophorum virginicum</i>	2/ 1/86
57479	<i>Eryngium aquaticum</i>	2/ 1/86
58167	<i>Eryngium campestre</i>	10/09/86
57720	<i>Eryngium foetidum</i>	9/25/85
56775	<i>Euonymus alatus</i>	11/ /85
56736	<i>Euonymus japonicus</i>	11/ /85
57877	<i>Euonymus macropterus</i>	6/25/86
56515	<i>Euonymus oxyphyllus</i>	11/ /85
56837	<i>Euonymus sp.</i>	12/14/85
57480	<i>Eupatorium capillifolium</i>	2/ 1/86
57481	<i>Eupatorium maculatum</i>	2/ 1/86
57607	<i>Eupatorium maculatum</i>	4/18/86
57730	<i>Eupatorium perfoliatum</i>	5/27/86
56537	<i>Eurya emarginata</i>	11/ /85
56538	<i>Eurya japonica</i>	11/ /85
56597	<i>Eurya japonica</i>	11/ /85
56639	<i>Eurya japonica</i>	11/ /85
57135	<i>Eurya japonica 'Nakafu'</i>	11/17/85
57136	<i>Eurya japonica cv. indet</i>	11/17/85
56497	<i>Euscaphis japonica</i>	11/ /85
56501	<i>Euscaphis japonica</i>	11/ /85
56531	<i>Euscaphis japonica</i>	11/ /85
56634	<i>Euscaphis japonica</i>	11/ /85
56710	<i>Euscaphis japonica</i>	11/ /85
58334	<i>Eustoma grandiflorum</i>	12/ 1/86
58071	<i>Excoecaria cochinchinensis</i>	9/18/87
57942	<i>Fagus grandifolia /'Stoner's Compact'/</i>	7/24/86
57621	<i>Fagus sylvatica 'Tortuosa'</i>	4/21/86
58171	<i>Farfugium japonicum</i>	10/10/86
58305	<i>Felicia amelloides /variegated form/</i>	12/07/86
56838	<i>Fern /unknown/</i>	12/14/85
56465	<i>Fern indet</i>	11/ /85
56540	<i>Fern indet</i>	11/ /85
56543	<i>Fern indet</i>	11/ /85
56558	<i>Fern indet</i>	11/ /85
56564	<i>Fern indet</i>	11/ /85
56565	<i>Fern indet</i>	11/ /85
57662	<i>Festuca amethystina 'April Gruen'</i>	5/ 2/86
56524	<i>Ficus erecta</i>	11/ /85
56532	<i>Ficus nipponica</i>	11/ /85

57991	<i>Ficus retusa</i>	6/25/86
56468	<i>Ficus</i> sp.	11/ /85
56469	<i>Ficus</i> sp.	11/ /85
57899	<i>Filipendula palmata</i>	7/03/86
57218	<i>Filpendula multijuga</i>	11/17/85
57878	<i>Forsythia japonica</i>	6/25/86
57392	<i>Forsythia viridissima</i>	3/ /86
58177	<i>Franklinia alatamaha</i>	
56619	<i>Fraxinus sieboldiana</i>	11/ /85
56753	<i>Fraxinus sieboldiana</i>	11/ /85
57652	<i>Gaillardia aristata</i>	5/ 1/86
58325	<i>Galanthus nivalis 'Simplex'</i>	10/28/86
58227	<i>Galanthus nivalis 'Snowdrop'</i>	11/06/86
57482	<i>Galax aphylla</i>	2/ 1/86
57868	<i>Galax aphylla</i>	6/12/86
56733	<i>Gardneria insularis</i>	11/ /85
56952	<i>Gaultheria procumbens</i>	/ /86
56785	<i>Gelsemium sempervirens</i>	12/14/85
58395	<i>Gentiana decora</i>	10/ /86
56958	<i>Geranium 'Renard'</i>	2/ 5/86
57483	<i>Geranium maculatum</i>	2/ 1/86
56957	<i>Geranium sanguineum 'Album'</i>	2/ 5/86
57219	<i>Glaucidium palmatum</i>	11/17/85
56671	<i>Gleditsia japonica</i> var. koraiensis	11/ /85
56484	<i>Gleichenia japonica</i>	11/ /85
56570	<i>Glycine max</i>	11/ /85
56622	<i>Glycine max</i>	11/ /85
56623	<i>Glycine max</i>	11/ /85
56702	<i>Glycine max</i>	11/ /85
56703	<i>Glycine max</i>	11/ /85
56704	<i>Glycine max</i>	11/ /85
56786	<i>Gordonia lasianthus</i>	12/14/85
56972	<i>Gramineae</i> sp.	10/17/85
56936	<i>Haematoxylon campechianum</i>	2/ /86
57052	<i>Hakonechloa macra</i>	10/27/85
57193	<i>Hakonechloa macra</i>	11/17/85
58340	<i>Halenia deflexa</i>	12/ 1/86
57484	<i>Halesia carolina</i>	2/ 1/86
57945	<i>Hamamelis 'Firecracker'</i>	8/11/86
57158	<i>Hamamelis mollis 'Boskoop'</i>	11/17/85
57946	<i>Hamamelis mollis 'Gold Crest'</i>	8/11/86
57159	<i>Hamamelis mollis 'Iwato'</i>	11/17/85
57948	<i>Hamamelis mollis 'Pallida'</i>	8/11/86
56839	<i>Hamamelis virginiana</i>	12/14/85
57947	<i>Hamamelis x intermedia 'Arnold Promise'</i>	8/11/86
57132	<i>Hardenbergia</i> sp.	11/16/85
57969	<i>Hedeoma drummondii</i>	4/30/86
57970	<i>Hedeoma palmeri</i>	4/30/86
57971	<i>Hedeoma patens</i>	4/30/86
56425	<i>Hedera helix</i> /small leaf/	11/18/85
56882	<i>Hedyotis caerulea</i>	2/10/86
56883	<i>Hedyotis purpurea</i>	2/10/86
57653	<i>Helenium hoopesii</i>	5/ 1/86
57550	<i>Helenium nudiflorum</i>	2/10/86

57485	<i>Helianthus atrorubens</i>	2/ 1/86
57809	<i>Helianthus atrorubens</i>	4/30/86
57486	<i>Helianthus heterophylla</i>	2/ 1/86
57487	<i>Helianthus radula</i>	2/ 1/86
58077	<i>Helictotrichon sempervirens</i>	10/30/86
57250	<i>Heipterum manglesii</i>	10/23/85
57787	<i>Helleborus sternii</i>	3/22/86
56884	<i>Helonias bullata</i>	2/10/86
57573	<i>Hemerocallis 'Apple'</i>	4/17/86
57574	<i>Hemerocallis 'Firepower'</i>	4/17/86
57575	<i>Hemerocallis 'Goddess'</i>	4/17/86
57576	<i>Hemerocallis 'Honeymooner'</i>	4/17/86
57577	<i>Hemerocallis 'Merry Mist'</i>	4/17/86
57578	<i>Hemerocallis 'Passionate Prize'</i>	4/17/86
57579	<i>Hemerocallis 'Red Inferno'</i>	4/17/86
57580	<i>Hemerocallis 'Seersucker Sue'</i>	4/17/86
57581	<i>Hemerocallis 'Shockwave'</i>	4/17/86
57582	<i>Hemerocallis 'Slade Brown'</i>	4/17/86
57583	<i>Hemerocallis 'Whopper Stopper'</i>	4/17/86
57750	<i>Hemerocallis exaltata</i>	5/29/86
57688	<i>Hemerocallis middendorffii</i>	5/19/86
56561	<i>Hemerocallis</i> sp.	11/ /85
56595	<i>Hemerocallis</i> sp.	11/ /85
56631	<i>Hemerocallis</i> sp.	11/ /85
57751	<i>Hemerocallis yezoensis</i>	5/29/86
56885	<i>Hepatica acutiloba</i>	2/10/86
57488	<i>Hepatica americana</i>	2/ 1/86
56673	<i>Hepatica asiatica</i>	11/ /85
57220	<i>Hepatica nobilis</i> var. <i>japonica</i>	11/17/85
57221	<i>Hepatica nobilis</i> var. <i>japonica</i>	11/17/85
57609	<i>Heptacodium jasminoides</i>	4/19/86
57719	<i>Heptacodium jasminoides</i>	/ /81
57857	<i>Heracleum maximum</i>	6/12/86
58386	<i>Heracleum maximum</i>	9/ /86
58396	<i>Heterotheca gossypina</i>	10/ /86
56848	<i>Heterotheca graminifolia</i>	12/14/85
57489	<i>Heterotheca graminifolia</i>	2/ 1/86
57490	<i>Heterotheca pinifolia</i>	2/ 1/86
56849	<i>Heterotheca</i> sp.	12/14/85
56886	<i>Heuchera americana</i>	2/10/86
57491	<i>Heuchera americana</i>	2/ 1/86
58397	<i>Heuchera parviflora</i>	10/ /86
57358	<i>Hibiscus</i> /sel./	
57863	<i>Hibiscus sabdariffa</i>	7/06/86
58306	<i>Hibiscus sabdariffa</i>	12/08/86
56772	<i>Hibiscus syriacus</i>	11/ /85
57091	<i>Hibiscus syriacus</i> 'Sorairo'	11/ 2/85
58188	<i>Hibiscus</i> x 'Tosca'	10/20/86
56970	<i>Hinobambusa tranquillans</i>	10/16/85
56977	<i>Hippeastrum vittatum</i>	10/17/85
57411	<i>Holboellia grandiflora</i>	3/ /86
57879	<i>Hosta albomarginata</i>	6/25/86
57956	<i>Hosta fortunei</i> 'Aureomarginata'	2/ 5/86
58078	<i>Hosta fortunei</i> 'Hyacinthina'	10/30/86

57277	<i>Hosta rectifolia</i>	1/15/86
57900	<i>Hosta rectifolia</i>	7/03/86
57044	<i>Hosta sieboldiana</i>	10/26/85
56556	<i>Hosta</i> sp.	11/ /85
56567	<i>Hosta</i> sp.	11/ /85
56579	<i>Hosta</i> sp.	11/ /85
56582	<i>Hosta</i> sp.	11/ /85
56714	<i>Hosta</i> sp.	11/ /85
57399	<i>Hosta ventricosa</i>	3/ /86
58079	<i>Hosta x 'Honeybells'</i>	10/30/86
57492	<i>Houstonia purpurea</i>	2/ 1/86
57062	<i>Houttuynia cordata</i>	10/28/85
57721	<i>Houttuynia cordata</i>	9/25/85
58212	<i>Houttuynia cordata</i>	08/15/86
57049	<i>Hydrangea involucrata</i>	10/26/85
57210	<i>Hydrangea luteovenosa</i>	11/18/85
57735	<i>Hydrangea macrophylla</i>	5/27/86
57209	<i>Hydrangea macrophylla 'Nigra'</i>	11/17/85
56887	<i>Hydrangea quercifolia</i>	2/10/86
57941	<i>Hydrangea quercifolia</i>	7/22/86
56559	<i>Hydrangea serrata f. acuminata</i>	11/ /85
56888	<i>Hydrophyllum appendiculatum</i>	2/10/86
57493	<i>Hydrophyllum virginianum</i>	2/ 1/86
57766	<i>Hylomecon japonicum</i>	6/04/86
58287	<i>Hyoscyamus niger</i>	11/21/86
58153	<i>Hypericum perforatum</i>	10/ /86
56787	<i>Hypericum</i> sp.	12/14/85
56889	<i>Hypoxis hirsuta</i>	2/10/86
58112	<i>Hyptis radiata</i>	6/ 1/86
56695	<i>Idesia polycarpa</i>	11/ /85
56788	<i>Ilex ambigua</i>	12/14/85
57704	<i>Ilex buergeri /M/</i>	/85
56789	<i>Ilex buswellii</i>	12/14/85
57643	<i>Ilex colchica</i>	/ /81
56790	<i>Ilex coriacea</i>	12/14/85
56640	<i>Ilex cornuta</i>	11/ /85
56641	<i>Ilex cornuta</i>	11/ /85
56642	<i>Ilex cornuta</i>	11/ /85
56644	<i>Ilex cornuta</i>	11/ /85
56645	<i>Ilex cornuta</i>	11/ /85
56659	<i>Ilex cornuta</i>	11/ /85
56665	<i>Ilex cornuta</i>	11/ /85
56726	<i>Ilex cornuta</i>	11/ /85
56755	<i>Ilex cornuta</i>	11/ /85
56771	<i>Ilex cornuta</i>	11/ /85
56666	<i>Ilex crenata</i>	11/ /85
57090	<i>Ilex crenata</i>	11/ 2/85
57190	<i>Ilex crenata</i>	11/17/85
57646	<i>Ilex crenata 'Compacta'</i>	5/ 1/86
57963	<i>Ilex crenata 'Helleri'</i>	3/ 3/86
57958	<i>Ilex glabra 'Shamrock'</i>	2/ 6/86
56502	<i>Ilex integra</i>	11/ /85
56505	<i>Ilex integra</i>	11/ /85
56533	<i>Ilex integra</i>	11/ /85

56719	Ilex integra	11/ /85
56721	Ilex integra	11/ /85
56762	Ilex integra	11/ /85
56763	Ilex integra	11/ /85
56770	Ilex integra	11/ /85
57642	Ilex longipes	1/26/82
56491	Ilex macropoda	11/ /85
56661	Ilex macropoda	11/ /85
56754	Ilex macropoda	11/ /85
57560	Ilex opaca /witch's broom/	4/15/86
57155	Ilex serrata 'Pendula'	11/17/85
56503	Ilex wandoensis	11/ /85
56743	Ilex wandoensis	11/ /85
56745	Ilex wandoensis	11/ /85
56746	Ilex wandoensis	11/ /85
56747	Ilex wandoensis	11/ /85
56748	Ilex wandoensis	11/ /85
56756	Ilex wandoensis	11/ /85
56757	Ilex wandoensis	11/ /85
56758	Ilex wandoensis	11/ /85
56446	Ilex wenchowensis	1/25/86
57702	Ilex x 'Bob Bruner' /M/	5/22/86
57706	Ilex x 'Emily Bruner' /F/	/46
57703	Ilex x 'Giny Bruner' /F/	5/22/86
57705	Ilex x 'James Swan' /M/	/84
56441	Ilex x 'Libs Favorite'	12/10/85
56442	Ilex x 'Nellie R. Stévens'	12/10/85
57957	Ilex x attenuata 'Foster #2'	2/ 6/86
58190	Ilex x attenuata 'Foster #2'	10/22/86
57752	Ilex x makinoi	5/29/86
58180	Ilex zhejiangensis	01/17/86
56791	Illicium floridanum /white form/	12/14/85
56792	Illicium parviflorum	12/14/85
57226	Imperata cylindrica	11/18/85
57359	Imperata cylindrica	6/ /84
57767	Imperata cylindrica 'Rubra'	6/04/86
58093	Imperata cylindrica /rubra/	10/ 6/86
57753	Inula ciliaris	5/29/86
58335	Ipomopsis rubra	12/ 1/86
57917	Iris 'Antique Tapestry'	7/14/86
57935	Iris 'Be Dazzled'	7/14/86
57934	Iris 'Beau'	7/14/86
57918	Iris 'Bicentennial'	7/14/86
57919	Iris 'Bronze Sculpture'	7/14/86
57920	Iris 'Chartreuse Ruffles'	7/14/86
57921	Iris 'Chiffon Bonnet'	7/14/86
57936	Iris 'Do-Si-Do'	7/14/86
57922	Iris 'Erlene Richeson'	7/14/86
57923	Iris 'Fabulous Frills'	7/14/86
57924	Iris 'Green Eyed Lady'	7/14/86
57925	Iris 'Homecoming Queen'	7/14/86
57926	Iris 'Louisiana Lace'	7/14/86
57927	Iris 'Mr. Lincoln'	7/14/86
57928	Iris 'Myra Elizabeth'	7/14/86

57929	Iris 'Pink Kitten'	7/14/86
57930	Iris 'Ringo'	7/14/86
57937	Iris 'Solar Song'	7/14/86
57931	Iris 'Space Blazer'	7/14/86
57932	Iris 'Tanapah'	7/14/86
57933	Iris 'Wild West'	7/14/86
57810	Iris cristata 'Vein Mountain'	4/30/86
58228	Iris danfordiae	11/06/86
57363	Iris kaempferi 'Midnight Sky'	9/ 2/83
57364	Iris kaempferi 'Rosy Dawn'	9/ 2/83
56890	Iris prismatica	2/10/86
57811	Iris prismatica 'Polly Spout'	4/30/86
58229	Iris reticulata	11/06/86
56476	Iris tectorum	11/ /85
57768	Iris tectorum 'Alba'	6/04 86
57812	Iris tridentata	4/30/86
56891	Isopyrum binternatum	2/10/86
56793	Itea virginica	12/14/85
58213	Jasminum officinale /hardy/	08/15/86
58214	Jasminum x stephanense	08/15/86
58307	Jatropha curcus	12/08/86
56892	Jeffersonia diphylla	2/10/86
57654	Jeffersonia diphylla	5/ 1/86
58383	Jeffersonia diphylla	8/ /86
56422	Juncus sp.	10/12/85
56707	Juniperus chinensis	11/ /85
58297	Juniperus chinensis	12/01/86
56967	Juniperus conferta	10/16/85
56614	Juniperus rigida	11/ /85
56794	Juniperus silicicola	12/14/85
56539	Kadsura japonica	11/ /85
56720	Kadsura japonica	11/ /85
57099	Kadsura japonica	11/ 8/85
57100	Kadsura japonica	11/ 8/85
56795	Kalmia angustifolia	12/14/85
56796	Kalmia latifolia 'Myrtifolia'	12/14/85
57561	Kalmia latifolia 'Myrtifolia'	4/15/86
57393	Kerria japonica	3/ /86
57095	Kerria japonica 'Albescens'	11/ 7/85
56518	Koelreuteria paniculata	11/ /85
56520	Koelreuteria paniculata	11/ /85
57494	Kosteletskya virginica	2/ 1/86
57685	Laburnum alpinum	5/19/86
57686	Laburnum anagyroides	5/19/86
58313	Lagerstroemia floribunda	12/01/86
57432	Lagerstroemia indica	3/24/86
58314	Lagerstroemia indica	12/01/86
57442	Lagerstroemia indica	3/24/86
58315	Lagerstroemia speciosa	12/01/86
56773	Lagerstroemia subcostata	11/ /85
56959	Lamium maculatum 'White Nancy'	2/ 5/86
58191	Lantana camara /sel./	10/28/86
58192	Lantana camara /sel./	10/28/86
57622	Larix decidua 'Pendula'	4/21/86

57716	Larix kaempferi	5/14/86
57992	Larix leptolepis	6/25/86
57736	Laurus nobilis	5/27/86
57852	Lavandula angustifolia 'Irene Doyle'	6/10/86
57129	Lechenaultia biloba	11/16/85
57128	Lechenaultia sp.	11/16/85
56774	Leibnitzia anandria	11/ /85
57495	Leiophyllum buxifolium	2/ 1/86
58113	Lepechinia calycina	6/ 1/86
56979	Lespedeza 'Botan'	10/17/85
56980	Lespedeza 'Edo-Shibori'	10/17/85
57152	Lespedeza 'Issai'	11/17/85
57153	Lespedeza 'Yakushima'	11/17/85
56978	Lespedeza bicolor f. acutifolia	10/17/85
57151	Lespedeza bicolor f. alba	11/17/85
56991	Lespedeza buergeri	10/18/85
56990	Lespedeza sp.	10/18/85
57150	Lespedeza sp.	11/17/85
56994	Lespedeza thunbergii	10/18/85
57154	Lespedeza thunbergii	11/17/85
58072	Lespedeza thunbergii 'Shibori'	10/15/82
56797	Leucothoe axillaris	12/14/85
56850	Leucothoe axillaris	12/14/85
57562	Leucothoe racemosa	4/15/86
57563	Leucothoe recurva	4/15/86
57591	Liatris aspera	4/18/86
58387	Liatris aspera	9/ /86
57592	Liatris cylindracea	4/18/86
57496	Liatris earlei	2/ 1/86
57497	Liatris graminifolia	2/ 1/86
57731	Liatris graminifolia	5/27/86
57593	Liatris pycnostachya	4/18/86
58011	Liatris spicata 'Kobold'	9/30/86
57754	Ligularia dentata	5/29/86
58094	Ligularia dentata 'Desdemona'	10/ 6/86
57755	Ligularia sibirica var. speciosa	5/29/86
58095	Ligularia stenocephala 'The Rockett'	10/ 6/86
56593	Ligustrum japonicum	11/ /85
57944	Ligustrum lucidum 'Davidson Hardy'	8/11/86
56716	Ligustrum quihoui var. latifolium	11/ /85
56751	Ligustrum quihoui var. latifolium	11/ /85
56612	Ligustrum quihoui var. latifolium	11/ /85
58278	Lilium 'Bessie'	11/19/86
58279	Lilium 'Corina'	11/19/86
58280	Lilium 'Geisha Girl'	11//19/86
58281	Lilium 'Moonshadow'	11/19/86
58282	Lilium 'Tropicana'	11/19/86
57278	Lilium canadense	1/15/86
57655	Lilium canadense	5/ 1/86
58274	Lilium hansonii	11/19/86
58275	Lilium henryi	11/19/86
57498	Lilium michauxii	2/ 1/86
57813	Lilium michauxii	4/30/86
57024	Lilium nobilissimum	10/24/85

57796	Lilium nobilissimum	3/22/86
57499	Lilium philadelphicum	2/ 1/86
58276	Lilium regale	11/19/86
56551	Lilium sp.	11/ /85
56629	Lilium sp.	11/ /85
56630	Lilium sp.	11/ /85
58277	Lilium speciosum 'Uchida'	11/19/86
57594	Lilium superbum	4/18/86
57400	Lindera communis	3/ /86
56693	Lindera erythrocarpa	11/ /85
56605	Lindera glauca	11/ /85
56620	Lindera glauca	11/ /85
56680	Lindera glauca	11/ /85
56493	Lindera obtusiloba	11/ /85
56668	Lindera obtusiloba	11/ /85
56682	Lindera obtusiloba f. velutina	11/ /85
56681	Lindera sericea	11/ /85
57756	Lindera umbellata var. membranacea	5/29/86
56435	Lippia dulcis	1/05/86
57972	Lippia dulcis	4/30/86
58223	Lippia graveolens	09/12/86
58344	Lippia micromera	10/ 1/86
56606	Liriope platyphylla	11/ /85
56690	Liriope platyphylla	11/ /85
58096	Liriope platyphylla 'Big Blue'	10/ 6/86
58186	Liriope platyphylla 'Majestic'	10/16/86
58174	Liriope platyphylla 'Royal Purple'	10/14/86
58175	Liriope spicata 'Silver Dragon'	10/14/86
57412	Lithocarpus cleistocarpus	3/ /86
57413	Lithocarpus paniculatus	3/ /86
57401	Lithocarpus sp.	3/ /86
58215	Lobelia /double blue/	08/15/86
57901	Lonicera chamissoi	7/03/86
58330	Lonicera sempervirens /yellow form/	10/15/86
57101	Luculia gratissima	11/ 8/85
57012	Lychnis coronata	10/19/85
58260	Lychnis x haageana	10/30/86
56487	Lycoris albiflora	11/ /85
56684	Lycoris albiflora	11/ /85
56486	Lycoris sp.	11/ /85
56921	Lygodium palmatum	2/10/86
57500	Lygodium palmatum	2/ 1/86
56799	Lyonia ligustrina	12/14/85
57501	Lyonia ligustrina	2/ 1/86
56851	Lyonia lucida	12/14/85
57564	Lyonia lucida	4/15/86
56800	Lyonia mariana	12/14/85
57565	Lyonia mariana	4/15/86
56617	Maackia amurensis	11/ /85
56461	Machilus thunbergii	11/ /85
56477	Machilus thunbergii	11/ /85
56478	Machilus thunbergii	11/ /85
56479	Machilus thunbergii	11/ /85
56482	Machilus thunbergii	11/ /85

56504	<i>Machilus thunbergii</i>	11/ /85
56507	<i>Machilus thunbergii</i>	11/ /85
56514	<i>Machilus thunbergii</i>	11/ /85
56643	<i>Machilus thunbergii</i>	11/ /85
56701	<i>Machilus thunbergii</i>	11/ /85
56801	<i>Magnolia ashei</i>	12/14/85
57690	<i>Magnolia biondii</i>	5/20/86
57610	<i>Magnolia denudata</i>	4/19/86
58231	<i>Magnolia denudata</i>	11/22/86
57414	<i>Magnolia diva</i>	3/ /86
57961	<i>Magnolia grandiflora</i>	2/24/86
57639	<i>Magnolia grandiflora 'Victoria'</i>	4/16/86
56621	<i>Magnolia kobus</i>	11/ /85
56523	<i>Magnolia liliiflora</i>	11/ /85
57380	<i>Magnolia liliiflora 'O'Neill'</i>	12/ /85
57415	<i>Magnolia officinalis</i>	3/ /86
57383	<i>Magnolia salicifolia 'Lufer'</i>	12/ /85
57384	<i>Magnolia salicifolia 'Miss Jack'</i>	12/ /85
57638	<i>Magnolia sieboldii</i>	/ /83
57161	<i>Magnolia sieboldii 'Plena'</i>	11/17/85
57170	<i>Magnolia stellata</i>	11/17/85
57880	<i>Magnolia stellata</i>	6/25/86
58293	<i>Magnolia stellata</i>	12/01/86
58294	<i>Magnolia stellata</i>	12/01/86
57171	<i>Magnolia stellata 'Beni-bana'</i>	11/17/85
57385	<i>Magnolia stellata 'Kikwaziki'</i>	12/ /85
57386	<i>Magnolia thompsoniana 'Urbana'</i>	12/ /85
57641	<i>Magnolia x 'Elizabeth'</i>	5/ /77
57637	<i>Magnolia x 'Nimbus'</i>	11/06/84
57381	<i>Magnolia x 'Picture'</i>	12/ /85
57382	<i>Magnolia x 'Royal Crown'</i>	12/ /85
57640	<i>Magnolia x 'Tod Gresham'</i>	/ /85
57691	<i>Magnolia zenii</i>	5/20/86
57964	<i>Mahonia bealei</i>	3/12/86
58356	<i>Maianthemum canadense</i>	12/ 1/86
56525	<i>Mallotus japonicus</i>	11/ /85
57677	<i>Malus 'Adams'</i>	5/ 2/86
57679	<i>Malus 'White Angel'</i>	5/ 2/86
57680	<i>Malus 'Wintergold'</i>	5/ 2/86
57362	<i>Malus /Harrington Crabapple/</i>	3/ 3/86
57357	<i>Malus /sel./</i>	
56637	<i>Malus baccata</i>	11/ /85
57443	<i>Malus halliana</i>	3/24/86
57678	<i>Malus hupehensis</i>	5/ 2/86
57689	<i>Malus orientalis</i>	5/19/86
56635	<i>Malus sieboldii</i>	11/ /85
57757	<i>Malus sieboldii</i>	5/29/86
57257	<i>Malus sp.</i>	9/ /75
57258	<i>Malus sylvestris</i>	7/19/85
57692	<i>Mandragora officinarum</i>	4/16/86
57693	<i>Mandragora officinarum</i>	4/16/86
57502	<i>Marshallia graminifolia</i>	2/ 1/86
57732	<i>Marshallia grandiflora</i>	5/27/86
58357	<i>Marshallia grandiflora</i>	12/ 1/86

57503	<i>Matelea carolinensis</i>	2/ 1/86
57733	<i>Matteuccia struthiopteris</i>	5/27/86
57914	<i>Matteuccia struthiopteris</i>	7/08/86
57858	<i>Matteucia</i> sp.	6/12/86
58358	<i>Medeola virginiana</i>	12/ 1/86
56663	<i>Meliosma oldhamii</i>	11/ /85
56769	<i>Meliosma oldhamii</i>	11/ /85
57758	<i>Meliosma tenuis</i>	5/29/86
57886	<i>Melissa officinalis 'Aurea'</i>	6/26/86
57902	<i>Metaplexis japonica</i>	7/03/86
56481	<i>Michelia compressa</i>	11/ /85
57103	<i>Miconia magnifica</i>	11/ 9/85
57279	<i>Milla biflora</i>	1/15/86
56508	<i>Milletia japonica</i>	11/ /85
58098	<i>Misanthus floridus</i>	10/ 6/86
56989	<i>Misanthus oligostachyus</i>	10/18/85
57194	<i>Misanthus sinensis</i>	11/17/85
58097	<i>Misanthus sinensis</i>	10/ 6/86
58109	<i>Misanthus sinensis 'Condensatus'</i>	10/ 6/86
58099	<i>Misanthus sinensis 'Silberfeder'</i>	10/ 6/86
58110	<i>Misanthus sinensis 'Silberpfeil'</i>	10/ 6/86
58100	<i>Misanthus sinensis 'Variegatus'</i>	10/ 6/86
58101	<i>Misanthus sinensis /yakushima race, dwarf/</i>	10/ 6/86
57195	<i>Misanthus sinensis var. condensatus</i>	11/17/85
57663	<i>Misanthus sinensis var. purpureascens</i>	5/ 2/86
58080	<i>Misanthus sinensis var. purpureascens</i>	10/30/86
56953	<i>Mitchella repens</i>	/ /86
57504	<i>Mitella diphylla</i>	2/ 1/86
57814	<i>Mitella diphylla</i>	4/30/86
58359	<i>Mitella diphylla</i>	12/ 1/86
57664	<i>Molinia caerulea</i>	5/ 2/86
56628	<i>Momordica charantia</i>	11/ /85
56725	<i>Momordica charantia</i>	11/ /85
58336	<i>Monarda citriodora</i>	12/ 1/86
57505	<i>Monarda didyma</i>	2/ 1/86
58216	<i>Monarda fistulosa</i>	08/15/86
57973	<i>Monarda punctata</i>	4/30/86
58114	<i>Monarda punctata</i>	6/ 1/86
56946	<i>Monarda russeliana</i>	12/ 4/85
56802	<i>Myrica cerifera</i>	12/14/85
56804	<i>Myrica cerifera /cutleaf form/</i>	12/14/85
56803	<i>Myrica cerifera /small leaved variety/</i>	12/14/85
57506	<i>Myrica cerifera var. pumila</i>	2/ 1/86
56805	<i>Myrica indora</i>	12/14/85
57887	<i>Myrtus communis 'Variegata'</i>	6/26/86
57782	<i>Nandina domestica 'Firepower'</i>	1/09/86
57783	<i>Nandina domestica 'Lowboy'</i>	1/09/86
57784	<i>Nandina domestica 'Nana Purpurea'</i>	1/09/86
57146	<i>Nandina domestica 'Sasaba'</i>	11/17/85
57785	<i>Nandina domestica 'Woods Dwarf'</i>	1/09/86
58139	<i>Narcissus 'Ballytrim'</i>	9/18/86
58140	<i>Narcissus 'Bogside'</i>	9/18/86
58141	<i>Narcissus 'Butterflower'</i>	9/18/86
58142	<i>Narcissus 'Crater'</i>	9/18/86

58150	Narcissus 'Crimpelene'	9/18/86
58143	Narcissus 'Eribol'	9/18/86
58310	Narcissus 'Flower Record'	11/03/86
58243	Narcissus 'Fortune's Bowl' /2Y-00R/	11/06/86
58244	Narcissus 'Ice Follies' /2W-W/	11/06/86
58144	Narcissus 'Juel'	9/18/86
58145	Narcissus 'Killeen'	9/18/86
58245	Narcissus 'Liberty Bells' /5Y-Y/	11/06/86
58151	Narcissus 'Lucky Star'	9/18/86
58326	Narcissus 'Mount Hood' /1Y-Y/	10/28/86
58146	Narcissus 'Orange Beacon'	9/18/86
58152	Narcissus 'Our Temple'	9/18/86
58246	Narcissus 'Peeping Tom' /6Y-Y/	11/06/86
58147	Narcissus 'Pryda'	9/18/86
58148	Narcissus 'Ramada'	9/18/86
58248	Narcissus 'Red Rascal' /2Y-R/	11/06/86
58247	Narcissus 'Redhill' /2W-R/	11/06/86
58250	Narcissus 'Royal Scarlet'	11/06/86
58249	Narcissus 'Spectator' /2W-YY0/	11/06/86
58251	Narcissus 'Tete-A-Tete' /6Y-0/	11/06/86
58137	Narcissus 'White Phantom'	9/18/86
58149	Narcissus 'Yamhill'	9/18/86
58138	Narcissus 'Yellowstone'	9/18/86
58242	Narcissus bulbocodium var. conspicuus /10Y-Y/	11/06/86
56527	Neolitsea sericea	11/ /85
56554	Neolitsea sericea	11/ /85
56717	Neolitsea sericea	11/ /85
56729	Neolitsea sericea	11/ /85
58187	Ochna serrulata	10/17/86
58217	Oenanthe javanica	08/15/86
57507	Oenothera fruticosa	2/ 1/86
56947	Oenothera missouriensis	12/ 4/85
57508	Oenothera tetragona	2/ 1/86
56458	Ophiopogon jaburan (white-variegated)	11/ /85
58176	Ophiopogon japonicus 'Greenmidget'	10/14/86
56443	Ophiopogon japonicus /form/	12/10/85
57069	Ophiopogon japonicus /sel./	10/31/86
57070	Ophiopogon japonicus /sel./	10/31/85
57071	Ophiopogon japonicus /sel./	10/31/85
57908	Ophiopogon ohwii	7/03/86
57909	Ophiopogon planiscapus	7/03/86
57888	Origanum aureum 'Crispum'	6/26/86
56683	Orixa japonica	11/ /85
58379	Orontium aquaticum	8/ /86
56806	Osmanthus americanus	12/14/85
57566	Osmanthus americanus	4/15/86
57737	Osmanthus fragrans	5/27/86
56423	Osmorhiza claytonii	10/12/85
57015	Osmunda japonica	10/20/85
57788	Paeonia mascula ssp. russi	3/22/86
58308	Paliurus spina-christi	12/17/86
57848	Panax quinquefolius	6/01/86
57370	Panicum virgatum	3/13/86
57666	Panicum virgatum 'Botstrahlbusch'	5/ 2/86

57665	Panicum virgatum 'Haense Herms'	5/ 2/86
58102	Panicum virgatum 'Haense Herms'	10/ 6/86
57667	Panicum virgatum 'Strictum'	5/ 2/86
58261	Papaver burseri	10/30/86
58262	Papaver burseri	10/30/86
57183	Paris japonica	11/17/85
57055	Paris sp.	10/27/85
57509	Parnassia asarifolia	2/ 1/86
56516	Patrinia scabiosaeifolia	11/ /85
56738	Patrinia scabiosaeifolia	11/ /85
57014	Patrinia scabiosaeifolia	10/20/85
57254	Patrinia scabiosaeifolia	10/23/85
57187	Patrinia scabiosaeifolia 'Asuka'	11/17/85
57186	Patrinia scabiosaeifolia 'Okan'	11/17/85
57185	Patrinia scabiosaeifolia 'Okubo'	11/17/85
57769	Paxistima canbyi	6/04/86
58130	Peganum harmala	9/ /86
58168	Pelargonium capitatum	10/09/86
57510	Peltandra virginica	2/ 1/86
58103	Pennisetum alopecuroides 'Hameln'	10/ 6/86
56549	Pennisetum alopecuroides f. erythrochaetum	11/ /85
56548	Pennisetum alopecuroides f. viridis	11/ /85
57668	Pennisetum incomptum	5/ 2/86
58104	Pennisetum incomptum	10/ 6/86
57815	Penstemon australis	4/30/86
57511	Penstemon canescens	2/ 1/86
58360	Penstemon canescens	12/ 1/86
58337	Penstemon cobaea	12/ 1/86
56893	Penstemon digitalis	2/10/86
57595	Penstemon grandiflorus	4/18/86
57734	Penstemon hirsutus	5/27/86
58115	Perilla frutescens 'TiaTo'	6/ 1/86
58012	Perovskia atriplicifolia	9/30/86
56840	Persea borbonia	12/14/85
57512	Phacelia bipinnatifida	2/ 1/86
57513	Phacelia fimbriata	2/ 1/86
57977	Phacelia purshii	8/22/86
56667	Philadelphus pekinensis	11/ /85
58290	Phlomis fruticosa	11/13/86
58116	Phlox 'Chattahoochee'	6/ 1/86
57816	Phlox amoena	4/30/86
57817	Phlox carolina	4/30/86
57818	Phlox pulchra	4/30/86
57718	Phlox stolonifera	5/26/86
57819	Phlox stolonifera 'Bruces White'	4/30/86
56669	Photinia villosa	11/ /85
56607	Photinia villosa var. longipes	11/ /85
56749	Photinia villosa var. longipes	11/ /85
56992	Phragmites australis	10/18/85
56922	Phyllitis scolopendrium	2/10/86
57182	Phyllostachys nigra	11/17/85
58361	Physocarpus opulifolius	12/ 1/86
57623	Picea abies 'Starker'	4/21/86
57433	Picea asperata	3/24/86

57434	Picea jezoensis	3/24/86
57435	Picea likiangensis	3/24/86
57624	Picea pungens 'Dietz Prostrate'	4/21/86
57625	Picea pungens 'Egyptian Pyramid'	4/21/86
58195	Picea pungens 'Hoto'	10/29/86
57436	Picea tianschanica	3/24/86
56896	Pieris floribunda	2/10/86
57025	Pieris japonica	10/24/85
58196	Pieris japonica 'Brower's Beauty'	10/29/86
56807	Pieris phillyreifolia	12/14/85
57976	Pilocarpus pinnatifolius	7/21/86
56808	Pinckneya pubens	12/14/85
57626	Pinus cembra /Bergman's #1/	4/21/86
56809	Pinus clausa	12/14/85
57939	Pinus kwangtungensis	7/21/86
57627	Pinus parviflora 'Ogon Janome'	4/21/86
57993	Pinus sp. (Nishiki matsu)	6/25/86
56810	Pinus taeda (witches broom)	12/14/85
57994	Pinus thunbergii	6/25/86
56417	Pinus thunbergii 'Oculus Draconis'	1/06/86
58218	Piper sanctum	08/15/86
56700	Pittosporum tobira	11/ /85
56706	Pittosporum tobira	11/ /85
56760	Pittosporum tobira	11/ /85
57064	Platycodon grandiflorum 'Komachi'	10/30/85
57371	Platycodon grandiflorum 'Mariesii'	3/13/86
57063	Platycodon grandiflorum 'Misato Purple'	10/30/85
57514	Pleea tenuifolia	2/ 1/86
56923	Plystichum braunii	2/10/86
56856	Poaceae /unk. #1/	12/14/85
56857	Poaceae /unk. #2/	12/14/85
57995	Podocarpus macrophyllus	6/25/86
57007	Podophyllum pleianthum	10/18/85
57515	Polemonium reptans	2/ 1/86
57820	Polemonium reptans	4/30/86
57829	Polemonium reptans	5/ /86
58341	Polemonium reptans	12/ 1/86
58117	Poliomintha longiflora	6/ 1/86
58362	Polygonatum biflorum	12/ 1/86
58363	Polygonatum canaliculatum	12/ 1/86
56480	Polygonatum involucratum	11/ /85
56584	Polygonatum involucratum	11/ /85
58302	Polygonatum odoratum /variegated sel./	12/01/86
56897	Polygonatum pubescens	2/10/86
58311	Polygonum cuspidatum var. spectabile	12/23/86
57722	Polygonum odoratum	9/25/85
58235	Polygonum odoratum	11/10/86
58131	Polygonum tinctorium	9/ /86
58364	Polymnia uvedalia	12/ 1/86
57915	Polystichum acrostichoides	7/08/86
57426	Polystichum braunii var. purshii	3/24/86
56759	Poncirus trifoliata	11/ /85
57147	Poncirus trifoliata	11/17/85
58301	Populus sieboldii	12/01/86

56494	Potentilla dickinsii	11/ /85
57959	Prunus laurocerasus 'Otto Luyken'	2/ 6/86
57965	Prunus laurocerasus 'Otto Luyken'	3/12/86
57647	Prunus x 'Snow Fountain'	5/ 1/86
57974	Psacalium descompositum	4/30/86
57628	Pseudotsuga menziesii 'Deilh's Golden	4/21/86
57191	Pteris guadriaurita 'Argyraea'	11/17/85
56546	Pteris multifida	11/ /85
57903	Pulsatilla chinesis	7/03/86
56456	Pulsatilla koreana	1/03/86
57904	Pulsatilla tatewakii	7/03/86
57173	Punica granatum 'Haku-botan'	11/17/85
57176	Punica granatum 'Haku-taka'	11/17/85
57177	Punica granatum 'Jindai-ryu'	11/17/85
57174	Punica granatum 'Ki-zakuro'	11/17/85
57178	Punica granatum 'Neji-kan'	11/17/85
57180	Punica granatum 'Nochi-shibori'	11/17/85
57175	Punica granatum 'Sarasa-shibori'	11/17/85
57172	Punica granatum 'Si-kon-ryu'	11/17/85
57179	Punica granatum 'Ten-shibori'	11/17/85
57181	Punica granatum 'Toryu-shibori'	11/17/85
57710	Punica granatum /hardy/	4/22/86
57066	Punica multiflora 'Scarlet'	10/30/85
56436	Pycnothymus rigidus	1/05/86
57996	Pyracantha crenulata	6/25/86
57027	Pyrus 'Oharabeni'	10/24/85
56625	Pyrus calleryana var. fauriei	11/ /85
56898	Pyxidanthera barbulata	2/10/86
56552	Quercus acuta	11/ /85
56585	Quercus acuta	11/ /85
56741	Quercus acuta	11/ /85
56742	Quercus acuta	11/ /85
56766	Quercus acuta	11/ /85
58312	Quercus robur	04/11/85
56590	Quercus salicina	11/ /85
56722	Quercus salicina	11/ /85
56724	Quercus salicina	11/ /85
56496	Quercus serrata	11/ /85
56611	Quercus serrata	11/ /85
58173	Quercus stenophylla	10/15/86
58179	Quercus variabilis	11/ /85
56948	Ratibida pinnata	12/ 4/85
57911	Ratibida pinnata	7/07/86
57130	Restio sp.	11/16/85
56495	Rhamnella franguloides	11/ /85
56609	Rhamnella franguloides	11/ /85
56580	Rhamnus crenatus	11/ /85
56664	Rhamnus crenatus	11/ /85
56610	Rhamnus koraiensis	11/ /85
56596	Rhamnus yoshinoi	11/ /85
56568	Rhaphiolepis umbellata	11/ /85
56727	Rhaphiolepis umbellata	11/ /85
56761	Rhaphiolepis umbellata	11/ /85
56811	Rhapiodophyllum hystrix	12/14/85

57516	Rhexia alifanus	2/ 1/86
56852	Rhexia petiolata	12/14/85
58159	Rhododendron 'Alexander'	10/08/86
57084	Rhododendron 'Chorus'	11/ 2/85
58160	Rhododendron 'Jeff Hill'	10/08/86
58161	Rhododendron 'Joseph Hill'	10/08/86
58162	Rhododendron 'Late Love'	10/08/86
58163	Rhododendron 'Michael Hill'	10/08/86
58164	Rhododendron 'Pink Pancake'	10/08/86
58165	Rhododendron 'Susannah Hill'	10/08/86
57028	Rhododendron 'Taiyo'	
58232	Rhododendron /Azalea/ cv.	11/ /86
58020	Rhododendron /Satsuki/ 'Ai-no-Nishiri'	8/29/86
57245	Rhododendron /Satsuki/ 'Ai-no-hana'	11/18/85
57239	Rhododendron /Satsuki/ 'Ai-no-nishiki'	11/18/85
57283	Rhododendron /Satsuki/ 'Akanagi'	3/ 5/86
58021	Rhododendron /Satsuki/ 'Asahi-no-Hikari'	8/29/86
57235	Rhododendron /Satsuki/ 'Asahi-no-izumi'	11/18/85
57242	Rhododendron /Satsuki/ 'Asazakura'	11/18/85
57284	Rhododendron /Satsuki/ 'Azuma-Kagami'	3/ 5/86
58052	Rhododendron /Satsuki/ 'Azumi'	8/29/86
57285	Rhododendron /Satsuki/ 'Banazi'	3/ 5/86
57266	Rhododendron /Satsuki/ 'Banka'	3/ 5/86
57287	Rhododendron /Satsuki/ 'Banshin'	3/ 5/86
58022	Rhododendron /Satsuki/ 'Banshin'	8/29/86
58023	Rhododendron /Satsuki/ 'Beni-Kirin'	8/29/86
58054	Rhododendron /Satsuki/ 'Brilliantissima'	8/29/86
57288	Rhododendron /Satsuki/ 'Bunkwa'	3/ 5/86
57289	Rhododendron /Satsuki/ 'Chikyu-no-Haru'	3/ 5/86
57290	Rhododendron /Satsuki/ 'Chitose Gawa'	3/ 5/86
57291	Rhododendron /Satsuki/ 'Choei'	3/ 5/86
58024	Rhododendron /Satsuki/ 'Chojuho'	8/29/86
57292	Rhododendron /Satsuki/ 'Daishuhai'	3/ 5/86
57293	Rhododendron /Satsuki/ 'Eikwan'	3/ 5/86
58025	Rhododendron /Satsuki/ 'Eishi'	8/29/86
57294	Rhododendron /Satsuki/ 'Fancy Gumpo'	3/ 5/86
58026	Rhododendron /Satsuki/ 'Fukuju'	8/29/86
58027	Rhododendron /Satsuki/ 'Gekkeikan'	8/29/86
57295	Rhododendron /Satsuki/ 'Getsutoku'	3/ 5/86
58028	Rhododendron /Satsuki/ 'Gettoku'	8/29/86
57247	Rhododendron /Satsuki/ 'Ginrei-no-haru'	11/18/85
58029	Rhododendron /Satsuki/ 'Gunbi'	8/29/86
57296	Rhododendron /Satsuki/ 'Gunsei'	3/ 5/86
57297	Rhododendron /Satsuki/ 'Gyokudo'	3/ 5/86
57298	Rhododendron /Satsuki/ 'Gyokushir'	3/ 5/86
57299	Rhododendron /Satsuki/ 'Hagoromo-no-Hikari'	3/ 5/86
57300	Rhododendron /Satsuki/ 'Hakatshiro'	3/ 5/86
57246	Rhododendron /Satsuki/ 'Hakucho'	11/18/85
57231	Rhododendron /Satsuki/ 'Hanagasa'	11/18/85
58030	Rhododendron /Satsuki/ 'Haru-no-Uta'	8/29/86
57228	Rhododendron /Satsuki/ 'Harunosono'	11/18/85
57301	Rhododendron /Satsuki/ 'Hatsushima'	3/ 5/86
57302	Rhododendron /Satsuki/ 'Higasa'	3/ 5/86
57303	Rhododendron /Satsuki/ 'Hitachi'	3/ 5/86

58057	Rhododendron	/Satsuki/	'Hoshi Nikari'	8/29/86
58058	Rhododendron	/Satsuki/	'Hosi'	8/29/86
57304	Rhododendron	/Satsuki/	'How-Zan'	3/ 5/86
57305	Rhododendron	/Satsuki/	'Hozan'	3/ 5/86
57241	Rhododendron	/Satsuki/	'Irodori'	11/18/85
57306	Rhododendron	/Satsuki/	'Isoshidori'	3/ 5/86
58031	Rhododendron	/Satsuki/	'Issho-no-Haru'	8/29/86
57307	Rhododendron	/Satsuki/	'Jindai'	3/ 5/86
57227	Rhododendron	/Satsuki/	'Juen'	11/18/85
58061	Rhododendron	/Satsuki/	'Jugetsu'	8/29/86
58062	Rhododendron	/Satsuki/	'Jugo Sa'	8/29/86
57308	Rhododendron	/Satsuki/	'Kagetsu Muji'	3/ 5/86
57309	Rhododendron	/Satsuki/	'Kaho'	3/ 5/86
58032	Rhododendron	/Satsuki/	'Kaho-no-Hikari'	8/29/86
57240	Rhododendron	/Satsuki/	'Karenko'	11/18/85
57310	Rhododendron	/Satsuki/	'Kashin'	3/ 5/86
57229	Rhododendron	/Satsuki/	'Kegatsu-no-homare'	11/18/85
58033	Rhododendron	/Satsuki/	'Keisetsu' /var./	8/29/86
57311	Rhododendron	/Satsuki/	'Kiko-shi'	3/ 5/86
58034	Rhododendron	/Satsuki/	'Kikoshi'	8/29/86
57312	Rhododendron	/Satsuki/	'Kimpo Nishiki'	3/ 5/86
57313	Rhododendron	/Satsuki/	'Kinpo Nishiki'	3/ 5/86
57314	Rhododendron	/Satsuki/	'Kinsei'	3/ 5/86
57248	Rhododendron	/Satsuki/	'Kirin-no-kagami'	11/18/85
57236	Rhododendron	/Satsuki/	'Kobai'	11/18/85
57238	Rhododendron	/Satsuki/	'Kobai-nishiki'	11/18/85
57233	Rhododendron	/Satsuki/	'Kobai-no-kagayaki'	11/18/85
57315	Rhododendron	/Satsuki/	'Kogetsu'	3/ 5/86
58035	Rhododendron	/Satsuki/	'Komei'	8/29/86
58036	Rhododendron	/Satsuki/	'Kongo-no-Hikari'	8/29/86
58063	Rhododendron	/Satsuki/	'Kow-Koko'	8/29/86
58037	Rhododendron	/Satsuki/	'Kozan-no-Tsuki'	8/29/86
58064	Rhododendron	/Satsuki/	'Kumpo'	8/29/86
57234	Rhododendron	/Satsuki/	'Kuni-no-takara'	11/18/85
58065	Rhododendron	/Satsuki/	'Kusudama'	8/29/86
58038	Rhododendron	/Satsuki/	'Meiko'	8/29/86
57316	Rhododendron	/Satsuki/	'Meikyo'	3/ 5/86
57317	Rhododendron	/Satsuki/	'Minatu'	3/ 5/86
58039	Rhododendron	/Satsuki/	'Miyuno-no-Tsuki'	8/29/86
57318	Rhododendron	/Satsuki/	'Monsaku'	3/ 5/86
57230	Rhododendron	/Satsuki/	'Murasaki-hime'	11/18/85
57319	Rhododendron	/Satsuki/	'Musashino'	3/ 5/86
57320	Rhododendron	/Satsuki/	'Myogi'	3/ 5/86
57321	Rhododendron	/Satsuki/	'Nakano Nishiki'	3/ 5/86
57322	Rhododendron	/Satsuki/	'Nami'	3/ 5/86
58040	Rhododendron	/Satsuki/	'Nami'	8/29/86
57323	Rhododendron	/Satsuki/	'Niji'	3/ 5/86
58041	Rhododendron	/Satsuki/	'Nikko'	8/29/86
57324	Rhododendron	/Satsuki/	'Nishikino-Hikari'	3/ 5/86
58066	Rhododendron	/Satsuki/	'Nishirin'	8/29/86
58067	Rhododendron	/Satsuki/	'Onsho'	8/29/86
58043	Rhododendron	/Satsuki/	'Otome-no-Mai'	8/29/86
58042	Rhododendron	/Satsuki/	'Ousho'	8/29/86
58068	Rhododendron	/Satsuki/	'Pink Iohga'	8/29/86

57325	Rhododendron /Satsuki/ 'Raiko'	3/ 5/86
57326	Rhododendron /Satsuki/ 'Sakuragata'	3/ 5/86
57327	Rhododendron /Satsuki/ 'Sankatsu'	3/ 5/86
57328	Rhododendron /Satsuki/ 'Sanyo'	3/ 5/86
57329	Rhododendron /Satsuki/ 'Sayo-no-Tsuki'	3/ 5/86
57330	Rhododendron /Satsuki/ 'Seiho'	3/ 5/86
57331	Rhododendron /Satsuki/ 'Shibori-Asagao'	3/ 5/86
57332	Rhododendron /Satsuki/ 'Shinfuki'	3/ 5/86
57333	Rhododendron /Satsuki/ 'Shinkigen'	3/ 5/86
57334	Rhododendron /Satsuki/ 'Shinkigen'	3/ 5/86
58044	Rhododendron /Satsuki/ 'Shinkigen'	8/29/86
58046	Rhododendron /Satsuki/ 'Shinkyo'	8/29/86
57335	Rhododendron /Satsuki/ 'Shinnyo-no-Hikari'	3/ 5/86
57336	Rhododendron /Satsuki/ 'Shinpo'	3/ 5/86
58045	Rhododendron /Satsuki/ 'Shinyo-no-ko'	8/29/86
57337	Rhododendron /Satsuki/ 'Shishen Nishiki'	3/ 5/86
57338	Rhododendron /Satsuki/ 'Shogetsu'	3/ 5/86
58059	Rhododendron /Satsuki/ 'Shokko Nishiki'	8/29/86
57339	Rhododendron /Satsuki/ 'Shosui'	3/ 5/86
57244	Rhododendron /Satsuki/ 'Suisen'	11/18/85
57340	Rhododendron /Satsuki/ 'Taisan Haku'	3/ 5/86
57341	Rhododendron /Satsuki/ 'Takara'	3/ 5/86
58047	Rhododendron /Satsuki/ 'Takasago'	8/29/86
57344	Rhododendron /Satsuki/ 'Tama Sugata'	3/ 5/86
57342	Rhododendron /Satsuki/ 'Tama-Hota'	3/ 5/86
58048	Rhododendron /Satsuki/ 'Tama-no-Hada'	8/29/86
57343	Rhododendron /Satsuki/ 'Tama-no-Hikari'	3/ 5/86
58049	Rhododendron /Satsuki/ 'Tenshoko'	8/29/86
58069	Rhododendron /Satsuki/ 'Teye'	8/29/86
58050	Rhododendron /Satsuki/ 'Tochi-no-Hikari'	8/29/86
57243	Rhododendron /Satsuki/ 'Totenko'	11/18/85
57232	Rhododendron /Satsuki/ 'Tsubaki-hime'	11/18/85
57237	Rhododendron /Satsuki/ 'Tsuga-no-haru'	11/18/85
57345	Rhododendron /Satsuki/ 'Uchu-no-Hikari'	3/ 5/86
57346	Rhododendron /Satsuki/ 'Ukifunei'	3/ 5/86
57347	Rhododendron /Satsuki/ 'Wakaebisu'	3/ 5/86
57348	Rhododendron /Satsuki/ 'Yae-no-Tsuki'	3/ 5/86
57349	Rhododendron /Satsuki/ 'Yakata-no-Tsuki'	3/ 5/86
57350	Rhododendron /Satsuki/ 'Yakushin'	3/ 5/86
57351	Rhododendron /Satsuki/ 'Yomei Nishiki'	3/ 5/86
58070	Rhododendron /Satsuki/ 'Yuke' indicum	8/29/86
58051	Rhododendron /Satsuki/ 'Yume'	8/29/86
57352	Rhododendron /Satsuki/ 'Zuio'	3/ 5/86
57353	Rhododendron /Satsuki/ 'Zuishii'	3/ 5/86
56812	Rhododendron alabamense	12/14/85
57567	Rhododendron alabamense	4/15/86
57086	Rhododendron amamiosimense	11/ 2/85
57087	Rhododendron amamiosimense	11/ 2/85
57088	Rhododendron amamiosimense	11/ 2/85
57089	Rhododendron amamiosimense	11/ 2/85
57085	Rhododendron amamoisimense	11/ 2/85
56813	Rhododendron arborescens	12/14/85
57568	Rhododendron arborescens	4/15/86
56899	Rhododendron atlanticum	2/10/86

56814	Rhododendron austrinum	12/14/85
56815	Rhododendron austrinum	12/14/85
56816	Rhododendron austrinum	12/14/85
56817	Rhododendron bakeri	12/14/85
57569	Rhododendron bakeri	4/15/86
56818	Rhododendron canescens	12/14/85
57570	Rhododendron canescens	4/15/86
56819	Rhododendron chapmanii	12/14/85
56820	Rhododendron coryi	12/14/85
56562	Rhododendron dauricum	11/ /85
57202	Rhododendron dauricum f. albiflorum	11/17/85
57079	Rhododendron eriocarpum	11/ 2/85
57106	Rhododendron eriocarpum	11/12/85
57080	Rhododendron eriocarpum 'Kaifu'	11/ 2/85
57082	Rhododendron eriocarpum 'Nanppu'	11/ 2/85
57083	Rhododendron eriocarpum 'Ryofu'	11/ 2/85
57081	Rhododendron eriocarpum 'Shifu'	11/ 2/85
56821	Rhododendron flammeum	12/14/85
57029	Rhododendron indicum	10/26/85
57030	Rhododendron indicum	10/26/85
57031	Rhododendron indicum	10/26/85
57032	Rhododendron indicum	10/26/85
57033	Rhododendron indicum	10/26/85
57034	Rhododendron indicum	10/26/85
57035	Rhododendron indicum	10/26/85
57036	Rhododendron indicum	10/26/85
57037	Rhododendron indicum	10/26/85
57038	Rhododendron indicum	10/26/85
57039	Rhododendron indicum	10/26/85
57040	Rhododendron indicum	10/26/85
57041	Rhododendron indicum	10/26/85
57042	Rhododendron indicum	10/26/85
57043	Rhododendron indicum	10/26/85
57073	Rhododendron indicum 'Beni-kumano'	11/ 2/85
57076	Rhododendron indicum 'Koba-kumano'	11/ 2/85
57074	Rhododendron indicum 'Kumano'	11/ 2/85
57075	Rhododendron indicum 'Nagasaki-kumano'	11/ 2/85
57077	Rhododendron indicum 'Satsuma-beni'	11/ 2/85
57078	Rhododendron indicum 'Shimabara-satsuki'	11/ 2/85
57280	Rhododendron japonicum f. flavum	1/15/86
57204	Rhododendron kaempferi 'Shikizaki'	11/17/85
57203	Rhododendron kaempferi 'Tachisen-e'	11/17/85
57205	Rhododendron kaempferi f. album	11/17/85
57111	Rhododendron kiusianum	11/12/85
57198	Rhododendron macrosepalum f. leucanthus	11/17/85
57864	Rhododendron maximum	6/12/86
57249	Rhododendron metternichii	11/20/85
56822	Rhododendron minus	12/14/85
57200	Rhododendron mucronatum 'Yukiguruma'	11/17/85
57005	Rhododendron mucronulatum	10/18/85
57105	Rhododendron mucronulatum	11/12/85
56457	Rhododendron mucronulatum f. albiflorum	1/03/86
57196	Rhododendron mucronulatum f. albiflorum	11/17/85
57197	Rhododendron mucronulatum f. ciliatum 'Tanna'	11/17/85

56589	Rhododendron mucronulatum var. maritimum	11/ /85
56823	Rhododendron oblongifolium	12/14/85
58365	Rhododendron prinophyllum	12/ 1/86
56824	Rhododendron prunifolium	12/14/85
57571	Rhododendron prunifolium	4/15/86
56691	Rhododendron schlippenbachii	11/ /85
56767	Rhododendron schlippenbachii	11/ /85
56825	Rhododendron speciosum	12/14/85
57022	Rhododendron tsusiophyllum	10/23/85
57023	Rhododendron tsusiophyllum	10/23/85
56900	Rhododendron vaseyi	2/10/86
57199	Rhododendron wadanum 'Shikizaki'	11/17/85
57201	Rhododendron wadanum f. leucanthum	11/17/85
57104	Rhododendron x 'Benifusha'	11/11/85
58019	Rhododendron x 'Golden Gala'	9/24/86
56740	Rhododendron yedoense var. poukhanense	11/ /85
58202	Rhus chinensis 'September Beauty'	11/05/86
56697	Ribes fasciculatum	11/ /85
58105	Rodgersia sambucifolia	10/ 6/86
57717	Rosa 'American Beauty'	5/20/86
58219	Rosa 'Bella Donna'	08/15/86
58220	Rosa 'Clotilde Soupert'	08/15/86
57102	Rosa 'Hanabus'	11/ 8/85
58221	Rosa 'Shailey's Provence'	08/15/86
57790	Rosa 'Snow Carpet'	3/22/86
57711	Rosa 'Souvenir de La Malmaison'	4/25/86
56735	Rosa wichuraiana	11/ /85
58263	Rosmarinus officinalis 'Prostratus'	10/30/86
57713	Rosmarinus officinalis /upright/	5/ 1/80
56960	Rudbeckia 'Herbstone'	2/ 5/86
56901	Rudbeckia fulgida	2/10/86
57517	Rudbeckia fulgida	2/ 1/86
58134	Rudbeckia fulgida	9/21/86
57518	Rudbeckia fulgida var. sullivantii	2/ 1/86
58013	Rudbeckia fulgida var. sullivantii 'Goldsturm'	9/30/86
57519	Ruellia caroliniensis	2/ 1/86
58169	Rumex obtusifolius	10/09/86
57889	Rumex scutatus	6/26/86
58154	Ruta chalepensis	10/ /86
57523	Sabatia angularis	2/ 1/86
56902	Sabatia dodecandra var. kennedyana	2/10/86
58398	Sabatia dodecandra var. kennedyana	10/ /86
57997	Sageretia theezans	6/25/86
57998	Sageretia theezans	6/25/86
57831	Salix alba 'Hutchinson Yellow Barked'	6/ /86
57832	Salix alba 'Liempde'	6/ /86
57833	Salix alba 'St. Oedenrode'	6/ /86
57189	Salix chaenomeloides	11/17/85
57836	Salix sp. cv.	/ /
57837	Salix sp. cv.	/ /
57835	Salix viminalis /Bowles Hybrid/	6/ /86
57834	Salix x 'Natural Red'	6/ /86
57791	Salix x gillottii	3/22/86
57872	Salvia 'East Friesland'	6/24/86

58014	<i>Salvia</i> 'East Friesland'	9/30/86
56437	<i>Salvia</i> ( <i>grahamii</i> x <i>greggii</i> )	1/05/86
58118	<i>Salvia coahuilensis</i>	6/ 1/86
58119	<i>Salvia discolor</i>	6/ 1/86
57712	<i>Salvia fruticosa</i>	5/ 1/86
58120	<i>Salvia greggii</i> 'Furman's Red'	6/ 1/86
58121	<i>Salvia greggii</i> 'Furman's Red' x <i>S. grahamii</i>	6/ 1/86
58204	<i>Salvia greggii</i> 'Rose' x <i>S. lemmontii</i>	06/01/86
58122	<i>Salvia greggii</i> /rose/	6/ 1/86
58123	<i>Salvia greggii</i> /white/ x <i>S. lemmontii</i>	6/ 1/86
58205	<i>Salvia lemmontii</i>	06/01/86
57714	<i>Salvia leucantha</i>	5/ 1/80
56424	<i>Salvia lyrata</i>	10/12/85
56993	<i>Salvia nipponica</i>	10/18/85
58224	<i>Salvia officinalis</i> 'Compacta'	10/12/86
58236	<i>Salvia officinalis</i> 'Ictarina'	5/ /82
58225	<i>Salvia officinalis</i> /Broadleaf Sage/	10/12/86
58124	<i>Salvia</i> sp. /peach colored/	6/ 1/86
56449	<i>Sambucus ebulus</i>	1/15/86
58155	<i>Sambucus ebulus</i>	10/ /86
58342	<i>Sambucus pubens</i>	12/ 1/86
57281	<i>Sanguinaria canadense</i>	1/15/86
57425	<i>Sanguisorba canadensis</i>	3/24/86
57859	<i>Sanguisorba canadensis</i>	6/12/86
57402	<i>Sanguisorba longiformis</i>	3/ /86
58156	<i>Sanguisorba minor</i> ssp. <i>magnolii</i>	10/ /86
58170	<i>Sanguisorba officinalis</i>	10/09/86
56587	<i>Sanguisorba tenuifolia</i> var. <i>purpurea</i>	11/ /85
56638	<i>Sapium japonicum</i>	11/ /85
56648	<i>Sapium japonicum</i>	11/ /85
56675	<i>Sapium japonicum</i>	11/ /85
56842	<i>Sarracenia flava</i>	12/14/85
57520	<i>Sarracenia leucophylla</i>	2/ 1/86
57521	<i>Sarracenia psittacina</i>	2/ 1/86
57522	<i>Sarracenia rubra</i> ssp. <i>wherryi</i>	2/ 1/86
56843	<i>Sarracenia</i> sp.	12/14/85
58125	<i>Satureja ashei</i> x <i>S. georgiana</i>	6/ 1/86
58126	<i>Satureja georgiana</i>	6/ 1/86
58399	<i>Satureja georgiana</i>	10/ /86
57644	<i>Satureja montana</i>	5/10/85
57045	<i>Saxifraga cortusaefolia</i>	10/26/85
57058	<i>Saxifraga cortusaefolia</i>	10/27/85
57056	<i>Saxifraga sendaica</i>	10/27/85
57057	<i>Saxifraga sendaica</i> f. <i>laciniata</i>	10/27/85
57059	<i>Saxifraga</i> sp.	10/27/85
58017	<i>Schisandra chinensis</i>	9/24/86
57779	<i>Schisandra coccinea</i>	3/01/86
57795	<i>Schisandra rubrifolia</i>	3/22/86
57552	<i>Sciadopitrys verticillata</i>	4/ 4/86
57551	<i>Sciadopitrys verticillata</i> 'Variegata'	3/28/86
56626	<i>Scilla scilloides</i>	11/ /85
56969	<i>Scilla</i> sp.	10/16/85
57524	<i>Scutellaria integrifolia</i>	2/ 1/86
57849	<i>Scutellaria serrata</i>	6/01/86

56841	<i>Sebastiania ligustrina</i>	12/14/85
57669	<i>Sedum 'Fuldaglut'</i>	5/ 2/86
58081	<i>Sedum 'Ruby Glow'</i>	10/30/86
57792	<i>Sedum acre 'Aureum'</i>	3/22/86
58264	<i>Sedum gracile</i>	10/30/86
56426	<i>Sedum indet.</i>	11/18/85
57670	<i>Sedum kamtschaticum 'Weihenstephan'</i>	5/ 2/86
57671	<i>Sedum sexangulare</i>	5/ 2/86
56462	<i>Sedum sp.</i>	11/ /85
56557	<i>Sedum spectabile</i>	11/ /85
56961	<i>Sedum spectabile 'Autumn Joy'</i>	2/ 5/86
58015	<i>Sedum spectabile 'Autumn Joy'</i>	9/30/86
57672	<i>Sedum spurium 'Album Superbum'</i>	5/ 2/86
56903	<i>Semecio aureus</i>	2/10/86
58389	<i>Senecio aureus</i>	9/ /86
57905	<i>Senecio cannabifolius</i>	7/03/86
56904	<i>Senecio obovatus</i>	2/10/86
57629	<i>Sequoia dendron giganteum 'Pendula'</i>	4/21/86
57999	<i>Serissa foetida</i>	6/25/86
57869	<i>Shortia galacifolia</i>	6/12/86
58406	<i>Sibbaldia olgae</i>	1/ /86
56962	<i>Sidalcea 'Brilliant'</i>	2/ 5/86
58366	<i>Silene stellata</i>	12/ 1/86
56949	<i>Silphium laciniatum</i>	12/ 4/85
57596	<i>Silphium laciniatum</i>	4/18/86
56950	<i>Silphium terebinthinaceum</i>	12/ 4/85
57597	<i>Silphium terebinthinaceum</i>	4/18/86
56937	<i>Simarouba glauca</i>	2/18/86
58106	<i>Sinarundinaria nitida</i>	10/ 6/86
57940	<i>Sinocalycanthus chinensis</i>	7/21/86
56447	<i>Sinojackia xylocarpa</i>	1/25/86
58181	<i>Sinojackia xylocarpa</i>	01/17/86
58367	<i>Sisyrinchium angustifolium</i>	12/ 1/86
57372	<i>Sisyrinchium sp.</i>	3/12/86
57906	<i>Skimmia repens Nakai</i>	7/03/86
56692	<i>Smilacina japonica</i>	11/ /85
58368	<i>Smilacina racemosa</i>	12/ 1/86
56679	<i>Smilax nipponica</i>	11/ /85
56657	<i>Smilax sieboldii</i>	11/ /85
56853	<i>Smilax walteri</i>	12/14/85
58082	<i>Solidago 'Cloth of Gold'</i>	10/30/86
58083	<i>Solidago 'Goldenmoss'</i>	10/30/86
57525	<i>Solidago bicolor</i>	2/ 1/86
57526	<i>Solidago caesia</i>	2/ 1/86
57527	<i>Solidago curtisii</i>	2/ 1/86
57881	<i>Solidago dahurica</i>	6/25/86
57528	<i>Solidago glomerata</i>	2/ 1/86
56905	<i>Solidago macrophylla</i>	2/10/86
56906	<i>Solidago odora</i>	2/10/86
57529	<i>Solidago odora</i>	2/ 1/86
58369	<i>Solidago odora</i>	12/ 1/86
58380	<i>Solidago odora</i>	8/ /86
56530	<i>Solidago patula</i>	2/ 1/86
57530	<i>Solidago patula</i>	2/ 1/86

56854	<i>Solidago pauciflosculosa</i>	12/14/85
57781	<i>Solidago pauciflosculosa</i>	12/14/86
57598	<i>Solidago rigida</i>	4/18/86
57531	<i>Solidago rugosa</i>	2/ 1/86
58378	<i>Solidago rugosa</i>	8/ /86
57532	<i>Solidago sempervirens</i>	2/ 1/86
57821	<i>Solidago sempervirens</i>	4/30/86
58370	<i>Solidago sp.</i>	12/ 1/86
57599	<i>Solidago speciosa</i>	4/18/86
58381	<i>Solidago tenuifolia</i>	8/ /86
58400	<i>Solidago uliginosa</i>	10/ /86
57010	<i>Solidago virga-aurea var. minutissima</i>	10/19/85
57011	<i>Solidago virga-aurea var. praeflorens</i>	10/19/85
56739	<i>Sophora flavescens</i>	11/ /85
58018	<i>Sophora flavescens</i>	9/24/86
56594	<i>Sorbus alnifolia</i>	11/ /85
57605	<i>Sorgastrum nutans</i>	4/18/86
58157	<i>Sorghum bicolor</i>	10/ /86
57533	<i>Spigelia marilandica</i>	2/ 1/86
57860	<i>Spigelia marilandica</i>	6/12/86
57738	<i>Spiraea bullata</i>	5/27/86
57656	<i>Spiraea cantoniensis 'Lanceata'</i>	5/ 2/86
56966	<i>Spiraea sp.</i>	10/16/85
57673	<i>Spodiopogon sibiricus</i>	5/ 2/86
58084	<i>Spodiopogon sibiricus</i>	10/30/86
57912	<i>Sporobolus heterolepis</i>	7/07/86
58108	<i>Sporobolus heterolepsis</i>	10/ 6/86
57675	<i>Stachys bysantina 'Silver Carpet'</i>	5/ 2/86
57674	<i>Stachys byzantina</i>	5/ 2/86
58288	<i>Stachys sylvatica</i>	11/21/86
57097	<i>Stachyurus praecox var. matsuzakii</i>	11/ 7/85
56467	<i>Stauntonia hexaphylla</i>	11/ /85
56907	<i>Stenanthium gramineum var. robustum</i>	2/10/86
57416	<i>Stephanandra chinensis</i>	3/ /86
57648	<i>Stephanandra incisa 'Crispa'</i>	5/ 1/86
56826	<i>Stewartia malacodendron</i>	12/14/85
57534	<i>Stokesia laevis</i>	2/ 1/86
57282	<i>Streptopus amplexifolius var. americanus</i>	1/15/86
57535	<i>Styrax americana</i>	2/ 1/86
58316	<i>Styrax confusa</i>	12/01/86
56827	<i>Styrax grandifolius</i>	12/14/85
56466	<i>Styrax japonica</i>	11/ /85
56526	<i>Styrax japonica</i>	11/ /85
56528	<i>Styrax japonica</i>	11/ /85
56535	<i>Styrax japonica</i>	11/ /85
56553	<i>Styrax japonica</i>	11/ /85
56586	<i>Styrax japonica</i>	11/ /85
56627	<i>Styrax japonica</i>	11/ /85
56646	<i>Styrax japonica</i>	11/ /85
57148	<i>Styrax japonicus 'Issai'</i>	11/17/85
58317	<i>Styrax megalocarpa</i>	12/01/86
57394	<i>Styrax odoratissima</i>	3/ /86
56448	<i>Styrax suberifolius</i>	1/25/86
58182	<i>Styrax suberifolius</i>	01/17/86

56492	Symplocos chinensis f. pilosa	11/ /85
56624	Symplocos paniculata	11/ /85
56500	Syneilesis aconitifolia	11/ /85
57184	Syneilesis palmata	11/17/85
57975	Tagetes lemmonii	4/30/86
56908	Talinum calycinum	2/10/86
58371	Talinum teretifolium	12/ 1/86
58327	Taxus /NTBD/	12/11/86
57630	Taxus baccata 'Standishii'	4/21/86
56866	Tephrosia virginiana	2/10/86
58372	Tephrosia virginiana	12/ 1/86
56444	Ternstroemia gymnanthera /sel. #1/	12/10/85
56445	Ternstroemia gymnanthera /sel. #2/	12/10/85
58401	Tetragonotheca helianthoides	10/ /86
57822	Teucrium canadense	4/30/86
58206	Teucrium majoricum	06/01/86
57890	Teucrium marum	6/26/86
56677	Thalictrum actaeafolium	11/ /85
57823	Thalictrum clavatum	4/30/86
57536	Thalictrum thalictroides	2/ 1/86
57916	Thelypteris hexagonoptera	7/08/86
56924	Thelypteris phegopteris	2/10/86
58338	Thermopsis montana	12/ 1/86
57537	Thermopsis villosa	2/ 1/86
56844	Theypteris kunthii	12/14/85
58197	Thuja occidentalis 'Minima'	10/29/86
58198	Thuja occidentalis 'Tiny Tim'	10/29/86
56427	Thymus praecox subsp. arcticus	11/18/85
57676	Thymus serpyllum 'Album'	5/ 2/86
57761	Thymus vulgaris 'Orange Balsam'	5/30/86
56418	Thymus vulgaris /French/	12/15/85
57715	Thymus x citriodorus 'Aureus'	5/ 1/80
57355	Tiarella cordifolia	1/15/86
57538	Tiarella cordifolia	2/ 1/86
56855	Tofieldia racemosa	12/14/85
56488	Torreya nucifera	11/ /85
56499	Torreya nucifera	11/ /85
56828	Torreya taxifolia	12/14/85
56541	Trachelospermum asiaticum	11/ /85
56712	Trachelospermum asiaticum	11/ /85
57824	Tradescantia hirsuticaulis	4/30/86
57600	Tradescantia ohiensis	4/18/86
56909	Trautvetteria carolinensis	2/10/86
57825	Trautvetteria carolinensis	4/30/86
56656	Trichosanthes kirilowii	11/ /85
56699	Trichosanthes kirilowii	11/ /85
56708	Trichosanthes kirilowii	11/ /85
56709	Trichosanthes kirilowii	11/ /85
57008	Tricyrtis (affinis x perfoliata)	10/18/85
56689	Tricyrtis dilatata	11/ /85
56744	Tricyrtis dilatata	11/ /85
56768	Tricyrtis dilatata	11/ /85
57222	Tricyrtis flava	11/17/85
56971	Tricyrtis hirta	10/17/85

57223	<i>Tricyrtis ishiiana</i> var. <i>surugensis</i>	11/17/85
56985	<i>Tricyrtis macrantha</i>	10/17/85
56983	<i>Tricyrtis macranthopsis</i>	10/17/85
56984	<i>Tricyrtis nana</i>	10/17/85
57224	<i>Tricyrtis nana</i> f. <i>yakusimense</i>	11/17/85
56982	<i>Tricyrtis ohsumiensis</i>	10/17/85
57636	<i>Tricyrtis ohsumiensis</i>	4/25/86
56981	<i>Tricyrtis perfoliata</i>	10/17/85
56963	<i>Tricyrtis</i> sp.	10/16/85
56986	<i>Tricyrtis</i> sp.	10/17/85
56987	<i>Tricyrtis</i> sp.	10/17/85
56988	<i>Tricyrtis</i> sp.	10/17/85
57539	<i>Trilisa odoratissima</i>	2/ 1/86
58402	<i>Trillium decumbens</i>	10/ /86
57356	<i>Trillium discolor</i>	1/15/86
57850	<i>Trillium grandiflorum</i>	6/01/86
57861	<i>Triosteum angustifolium</i>	6/12/86
57862	<i>Triosteum perfoliatum</i>	6/12/86
57395	<i>Tripterygium hypoglaucum</i>	3/ /86
56910	<i>Trollius laxus</i>	2/10/86
57962	<i>Tsuga canadensis</i>	2/24/86
57632	<i>Tsuga canadensis</i> 'Ashfield Weeper'	4/21/86
58233	<i>Tsuga canadensis</i> 'Ashfield Weeper'	11/28/86
57633	<i>Tsuga canadensis</i> 'Bergman's Gem'	4/21/86
57635	<i>Tsuga canadensis</i> 'Rhapsody'	4/21/86
57631	<i>Tsuga canadensis</i> /Abbott's #1/	4/21/86
58252	<i>Tulipa bakari</i>	11/06/86
58253	<i>Tulipa batalinii</i>	11/06/86
58254	<i>Tulipa turkestanica</i>	11/06/86
57634	<i>Tusga canadensis</i> /Copley Pyramidal/	4/21/86
57009	<i>Typha latifolia</i>	10/19/85
57838	<i>Ulmus americana</i>	6/05/86
57839	<i>Ulmus americana</i>	6/05/86
57840	<i>Ulmus americana</i>	6/05/86
57841	<i>Ulmus americana</i>	6/05/86
57842	<i>Ulmus americana</i>	6/05/86
57843	<i>Ulmus americana</i>	6/05/86
57844	<i>Ulmus americana</i>	6/05/86
57845	<i>Ulmus americana</i>	6/05/86
57846	<i>Ulmus americana</i>	6/05/86
58328	<i>Ulmus americana</i>	6/24/86
58329	<i>Ulmus americana</i>	6/24/86
56705	<i>Ulmus parvifolia</i>	11/ /85
58000	<i>Ulmus parvifolia</i>	6/25/86
58001	<i>Ulmus parvifolia</i>	6/25/86
58002	<i>Ulmus parvifolia</i>	6/25/86
58003	<i>Ulmus parvifolia</i>	6/25/86
58004	<i>Ulmus parvifolia</i>	6/25/86
58005	<i>Ulmus parvifolia</i>	6/25/86
58006	<i>Ulmus parvifolia</i>	6/25/86
58007	<i>Ulmus parvifolia</i>	6/25/86
58008	<i>Ulmus parvifolia</i>	6/25/86
57373	Undetermined fern/s/	/ /76
56911	<i>Uvularia grandiflora</i>	2/10/86

57826	<i>Uvularia grandiflora</i>	4/30/86
57827	<i>Uvularia pudica</i>	4/30/86
56829	<i>Vaccinium ashei</i>	12/14/85
56573	<i>Vaccinium bracteatum</i>	11/ /85
56574	<i>Vaccinium bracteatum</i>	11/ /85
56575	<i>Vaccinium bracteatum</i>	11/ /85
56576	<i>Vaccinium bracteatum</i>	11/ /85
56577	<i>Vaccinium bracteatum</i>	11/ /85
56715	<i>Vaccinium bracteatum</i>	11/ /85
56830	<i>Vaccinium crassulifolium</i>	12/14/85
56831	<i>Vaccinium elliottii</i>	12/14/85
56615	<i>Vaccinium oldhamii</i>	11/ /85
56752	<i>Vaccinium oldhamii</i>	11/ /85
57828	<i>Veratrum parviflorum</i>	4/30/86
58373	<i>Verbesina alternifolia</i>	12/ 1/86
57540	<i>Vernonia acaulis</i>	2/ 1/86
56912	<i>Vernonia altissima</i>	2/10/86
57608	<i>Vernonia fasciculata</i>	4/18/86
57541	<i>Vernonia glauca</i>	2/ 1/86
57601	<i>Veronicastrum virginicum</i>	4/18/86
57542	<i>Viburnum acerifolium</i>	2/ 1/86
56506	<i>Viburnum awabuki</i>	11/ /85
56545	<i>Viburnum boninsimense</i>	11/ /85
56550	<i>Viburnum boninsimense</i>	11/ /85
56571	<i>Viburnum carlesii</i>	11/ /85
57445	<i>Viburnum congestum</i>	3/24/86
57444	<i>Viburnum cylindricum</i>	3/24/86
56670	<i>Viburnum dilatatum</i>	11/ /85
56581	<i>Viburnum erosum</i>	11/ /85
56616	<i>Viburnum erosum</i>	11/ /85
56676	<i>Viburnum erosum</i>	11/ /85
56723	<i>Viburnum erosum</i>	11/ /85
56965	<i>Viburnum luzonicum</i>	10/16/85
57682	<i>Viburnum mongolicum</i>	5/16/86
57759	<i>Viburnum phlebotrichum</i>	5/29/86
56845	<i>Viburnum rufidulum</i>	12/14/85
56672	<i>Viburnum sargentii</i>	11/ /85
58318	<i>Viburnum sempervirens</i>	12/01/86
57396	<i>Viburnum setigerum</i>	3/ /86
57760	<i>Viburnum wrightii</i>	5/29/86
57960	<i>Viburnum x 'Chesapeake'</i>	2/ 6/86
57259	<i>Viburnum x burkwoodii /sel./</i>	3/ /86
57882	<i>Vicia unijuga</i>	6/25/86
56913	<i>Viola brittoniana</i>	2/10/86
56914	<i>Viola lanceolata</i>	2/10/86
57046	<i>Viola mandshurica</i>	10/26/85
57851	<i>Viola pubescens</i>	6/01/86
56915	<i>Viola pubescens var. eriocarpa</i>	2/10/86
58203	<i>Viola sp.</i>	11/ /85
56730	<i>Vitex rotundifolia</i>	11/ /85
58385	<i>Waldsteinia fragariooides</i>	9/ /86
57188	<i>Wasabia japonica</i>	11/17/85
56511	<i>Weigela praecox</i>	11/ /85
57167	<i>Wisteria floribunda 'Beni-chirimen'</i>	11/17/85

57162	<i>Wisteria floribunda</i> 'Jako'	11/17/85
57164	<i>Wisteria floribunda</i> 'Kuchibeni'	11/17/85
57166	<i>Wisteria floribunda</i> 'Kyushaku'	11/17/85
57211	<i>Wisteria floribunda</i> 'Okayama-i-sai'	11/17/85
57163	<i>Wisteria floribunda</i> 'Shiro-noda'	11/17/85
56925	<i>Woodsia ilvensis</i>	2/10/86
56926	<i>Woodsia obtusa</i>	2/10/86
57543	<i>Woodsia obtusa</i>	2/ 1/86
57910	<i>Woodsia obtusa</i>	7/07/86
56927	<i>Woodwardia virginica</i>	2/10/86
57544	<i>Woodwardia virginica</i>	2/ 1/86
57437	<i>Xanthoceras sorbifolium</i>	3/24/86
57545	<i>Xanthorrhiza simplicissima</i>	2/ 1/86
58107	<i>Yucca filamentosa</i>	10/ 6/86
56929	<i>Yucca glauca</i>	2/ /86
56930	<i>Yucca glauca</i>	2/ /86
56931	<i>Yucca glauca</i>	2/ /86
56932	<i>Yucca glauca</i>	2/ /86
56933	<i>Yucca glauca</i>	2/ /86
56934	<i>Yucca glauca</i>	2/ /86
56536	<i>Zanthoxylum ailanthoides</i>	11/ /85
56592	<i>Zanthoxylum piperitum</i>	11/ /85
56647	<i>Zanthoxylum piperitum</i>	11/ /85
56591	<i>Zanthoxylum planispinum</i>	11/ /85
56732	<i>Zanthoxylum planispinum</i>	11/ /85
56636	<i>Zanthoxylum schinifolium</i>	11/ /85
56613	<i>Zelkova serrata</i>	11/ /85
57145	<i>Zelkova serrata</i>	11/17/85
57160	<i>Zelkova serrata</i>	11/17/85
56832	<i>Zenobia pulverulenta</i>	12/14/85
57572	<i>Zenobia pulverulenta</i>	4/15/86
56833	<i>Zenobia pulverulenta</i> /silver backed/	12/14/85
57546	<i>Zephranthes atamasco</i>	2/ 1/86
56858	<i>Zigadenus glaberrimus</i>	12/14/85
57547	<i>Zigadenus glaberrimus</i>	2/ 1/86
58374	<i>Zigadenus glaberrimus</i>	12/ 1/86
58403	<i>Zigadenus glaberrimus</i>	10/ /86
58404	<i>Zigadenus leimanthoides</i>	10/ /86
57548	<i>Zizia aurea</i>	2/ 1/86
57549	<i>Zizia trifoliata</i>	2/ 1/86
56450	<i>Ziziphora bungeana</i>	1/15/86
56451	<i>Ziziphora pamiroalaica</i>	1/15/86



USNA PLANT EXPLORATION FOR ELITE GARDEN PLANTS

PHASE II: 1987

GREAT BRITAIN

Prepared by: S. G. March, Horticulturist  
U. S. National Arboretum  
October 1986

1. Objectives: To obtain elite ornamentals for American horticulture not presently cultivated in this country from specialty nurseries, botanical gardens, arboreta, and private specialists.
2. Justification for this travel: This trip to Great Britain is the western counterpart of the trip made to Japan in 1985. The British have in the west, parallel the Japanese in the east, relative to the growing and selecting of elite garden plants. While the Japanese have selected garden plants largely from native flora, the British have not only made selections from native flora but also from that resulting from a long history of plant exploration and collecting on a world-wide basis. The phrase "This Garden England" is most appropriate for the diversity and abundance of garden plants grown. There has not been a concentrated effort on the introduction of elite garden plants from Britain since that of Frederick G. Meyer in 1957 for ARS, USDA, in cooperation with Longwood Gardens. Current investigations into the feasibility of a trip to Britain indicate that such a trip would be productive in introducing noteworthy new elite garden plants for the American nursery trade and consumer. The trip will be in cooperation with Longwood Gardens.  
Personal visitation to nurseries, garden center, botanic gardens, arboreta, and plant specialists in Britain; review of horticultural literature; and consultation with horticulturists and nursery industry representatives in the United States and Britain over the past two years.
3. Proposed Budget: Travel 9/12/87 - 10/19/87  
Two persons - U. S. National Arboretum and Longwood Gardens

Air Travel: 600 x 2 .....	\$1,200.00
Per Diem Expenses: London - \$150/day x 3 days x 2 .....	900.00
Per Diem Expenses: Field - \$75/day x 45 days x 2 .....	7,750.00
Internal Transport: .....	1,000.00
Excess baggage shipping .....	1,200.00
Purchase Plants .....	2,500.00
Miscellaneous Expenses .....	450.00
	<hr/>
Total	15,000.00

4. Sources of Funds: FONA and the Longwood Foundation.



USNA PLANT EXPLORATION IN KOREA, PHASE 3: 1987-88  
NORTHEAST MOUNTAINS: KANGWON PROVINCE AND ULLUNG ISLAND

Prepared by Barry R. Yinger, Curator of Asian Collections  
U.S. National Arboretum  
July 1986

U.S. National Arboretum plant exploration in Korea has, in 1984 and 1985, investigated and sampled the distinctive flora of the west coast and islands of the Republic of Korea. The search for superior landscape plants has extended from the islands off the North Korean coast (about 38° N latitude) south to Sohuksan Island, the most remote island off the southwest coast of Korea (about 34° N latitude).

It is our intention to continue our search for superior landscape plants in the eastern parts of the Korean peninsula, beginning with the mountainous province of Kangwon. The principle target sites for collecting will be within an area defined by the Demilitarized Zone at the border with North Korea (about 38° 30' N latitude) and the southern border of Kangwon Province (about 37° N latitude). The collecting area will include the island of Ullung (also known as Dagelet or Takeshima) which lies about 150 km off the east coast of Kangwon Province. The only major island off the east coast, it is technically part of Kyongsang Pukdo (province).

Collecting in this region will emphasize opportunities for selection for cold-hardiness as well as enhanced ornamental value. Kangwon Province is particularly suitable for this work for several reasons:

(1) A combination of latitude and altitude make this the coldest site in the Republic of Korea. The proposed collecting sites are all mountainous, ranging from an altitude of 984 m. (Song-in Bong on Ullung Island) to 1708 m. (Sorak Mt.). Latitudes range from about 37° N to 38° 30' N. Minimum temperatures at coastal sites in this area are about -20° C.; at high altitudes temperatures of -30 to -40° C. are not unusual. Prevailing winter winds from continental Asia create a challenging winter environment for even the hardiest plants. Many sites experience winter conditions which suggest potential for collecting superior germplasm for the northeastern and upper midwestern United States and southern Canada.

(2) The dominant elements of the natural vegetation of this region are "northern elements", that is, the species of plants which characterize the region extending through the mountainous northeastern section of North Korea through Manchuria and northeastern China. This is the region which holds the most promise for producing landscape plants of exceptional cold-hardiness and stress tolerance for those parts of North America with a cold-temperate climate. Kangwon Province is the only part of this floristic region which is politically accessible now for relatively unrestricted collecting. Collections from the mountains of Kangwon Province will be of interest to cooperators in USDA hardiness zones 4 to 8.

(3) Unlike much of Korea, the native vegetation in Kangwon Province is in rather good condition, and there are several areas where the forests have probably never been cut. The most interesting sites are those which have been under the continuous protection of Buddhist temples for at least 1000 years; these and adjacent areas are now designated as national parks. Because of this long protection there are very extensive populations of desirable landscape plants providing unusually good opportunities for field selection to identify populations or individuals with superior flowers, fruit, foliage, or habit in the field. These plants can be the focus of seed collecting later so that evaluation in cultivation can begin with superior material. Beginning the selection process in the wild can dramatically reduce the cost of subsequent work in cultivation.

(4) Although Kangwon Province (and Ullung Island) are accessible, very little systematic collecting for landscape plants has been done. The most important source of documented woody plants from this region (especially Ullung Island) is the collections of Ernest Wilson who collected here in 1919 for the Arnold Arboretum. Collections were made in 1966 by Dr. Richard Lighty on a Longwood Gardens--USDA expedition; other collections have been made by Peter Bristol of the Holden Arboretum and Paul Meyer of the Morris Arboretum. No concentrated effort in this part of Korea has stressed the importance of field evaluation preceding seed collecting.

(5) Ullung Island has a long-isolated, distinctive flora including more than thirty endemic taxa, according to the Japanese botanist Nakai who wrote a monograph on Ullung's flora in 1918. This flora includes the only Fagus in Korea (Fagus multinervis) as well as endemic taxa in such important woody landscape genera as Acer, Prunus, Phellodendron, Syringa, Cotoneaster, Tilia and Ligustrum. Several important broadleaved evergreen species of trees and shrubs thrive near sea level. Collections of deciduous trees and shrubs from higher altitudes will be of interest to cooperators in USDA zones 4 to 8.

#### COLLECTING GOALS

The U.S. National Arboretum has several goals in collecting in Kangwon Province:

(1) To collect superior ecotypes of woody plants which will be useful in existing research programs. Emphasis will be on cold-hardiness and stress tolerance in such genera as Ulmus, Quercus, Acer, Celtis, Carpinus, Alnus, Prunus, Malus, and Viburnum which are subjects for current USNA research.

(2) To collect germplasm of a range of woody landscape species for the proposed germplasm depository for woody plants to be initiated at the USNA's facilities at Glenn Dale and Beltsville, MD.

(3) To collect germplasm of potential landscape species of interest to other institutions which cooperate in the exploration of Kangwon Province.

(4) To document the native flora of Kangwon Province by collecting dried herbarium specimens. All germplasm collections will be accompanied by voucher specimens, the first set of which will be deposited in the herbarium of the U.S. National Arboretum. Additional specimens to create a representative

sample of the vascular flora will be collected throughout the region to supplement what is becoming the best herbarium collection of documented Korean native plants outside Asia.

(5) To assist in the conservation of rare or endangered Korean native plants by establishing in collections populations of those species which are endemic to very limited areas, especially those which are under unusual pressure because of habitat destruction or collecting for commercial or medicinal purposes.

#### COLLECTING STRATEGY

It is desirable to visit Kangwon Province and Ullung Island twice, once during the season when the plants which are designated as target species for collecting can be observed and evaluated in the field in growth or flower, and again to collect seed from selected populations or individuals. Because Korea has been selected as the site for the 1987 Asian Games and the 1988 Summer Olympics, the summer should be avoided to avoid logistical problems. The exact dates of travel will depend on the composition of the final list of target species, which will depend in part on the as yet unknown needs of cooperating institutions.

It is likely that the evaluation segment will be scheduled for late spring, 1987, to last about six weeks. About four weeks will be allotted for Kangwon Province and two weeks for Ullung Island. In addition to field evaluation and site selection for seed-collecting, large numbers of herbarium specimens will be made on this trip.

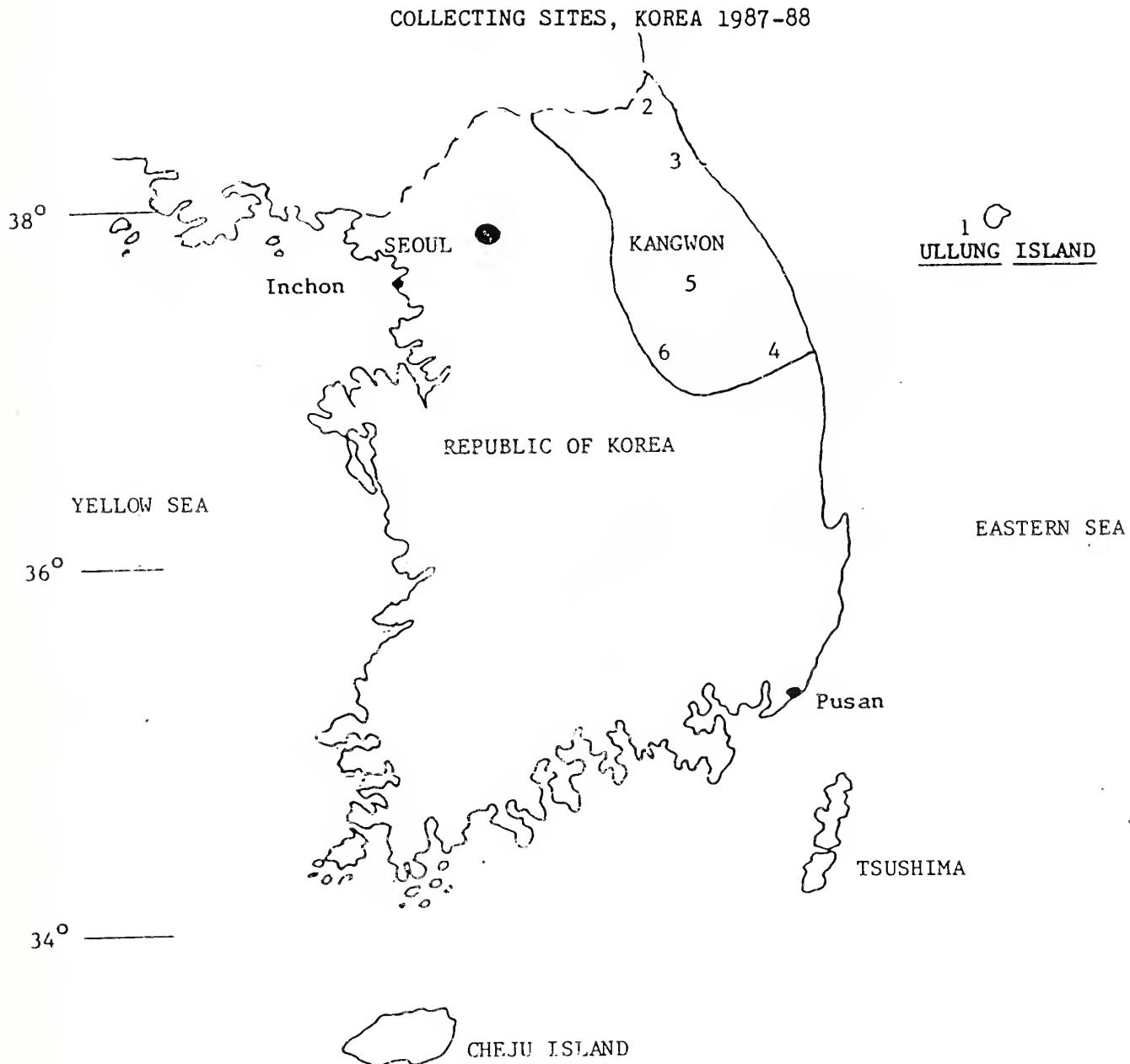
The seed-collecting segment can be scheduled for autumn 1987 or 1988, about six weeks from the beginning of October to the middle of November. Again, about four weeks should be spent in Kangwon Province and two weeks on Ullung Island. In addition to seed collecting, voucher herbarium specimens will be made for all germplasm collections. The team leader will have to arrive in advance of the team to make final on-site arrangements and remain a few days to complete drying and cleaning of seeds, and packing and shipping of all materials.

Because of the backlog of germplasm accessions from previous Korean collecting, it is recommended that the seed-collecting phase be delayed until the autumn of 1988.

The two separate trips, whether conducted in one year or two, are presented here as a single package. A full share entitles the cooperating institution to the right to designate target species for collection beyond those of special interest to the USNA, a full share of resulting germplasm, a set of voucher herbarium specimens for germplasm collections, and the opportunity to designate a qualified participant for one of the two trips. This participant's transportation and normal per diem expenses will be paid from the trip budget at a level determined by the USNA.

Any potential participants should keep in mind that the collection sites are mountainous, often treacherously so, requiring rigorous hiking and some

climbing almost daily. Living conditions in the field, particularly on Ullung Island, are likely to be uncomfortable. Participation should be limited to those in excellent condition, with field-collecting experience.



## BUDGET

For the sake of simplicity, the two trips will be assumed to be the same length, with about the same amount of time spent in Kangwon Province and on Ullung Island. Each trip will be assumed to include a team leader and two other participants.

Based on this estimate, the total cost of the two-trip package will be about \$41400.00. The cost of a full share is set at \$13800.00.

#### PARTIAL LIST OF POTENTIAL TARGET SPECIES

*Abelia insularis*: Ullung Island endemic.

*Abies nephrolepis*, *A. holophylla*: Very hardy, adaptable firs from Kangwon.

Acer mandshuricum, A. triflorum: Very hardy, highly ornamental maples from Kangwon.

A. takesimense, A. okamotoanum: Ullung Island endemics not in cultivation.  
A. tegumentosum: Extremely hardy snake-bark maple rare in cultivation, from

Kangwon.

Alnus maximowiczii: Only populations in Korea long-isolated on Ullung Is.  
Betula costata, B. davurica, B. platyphylla var. platyphylla: Very hardy

birches with potential borer resistance from Kangwon.

Carpinus spp.: Several species of great hardiness from Kangwon.

Corylopsis coreana: Hardiness potential from mountain sites west of Kangw

Cotoneaster wilsonii: Ullung Island endemic; only species east

Fagus multinervis: Ullung Island endemic, only Fagus in Korea.

Ilex integra: Isolated populations on Ullung Island; hardiness potential;

yellow-fruited forms.

Ligustrum foliosum: Ullung Island endemic.

Lonicera insularis: Ullung Island endemic.

Magnolia sieboldii: Exceptionally hardy and ornamental forms from Kangwon.

Malus baccata, M. sieboldii: Superior forms with great hardiness from Kangwo.

Neolitsea sericea: Hardy forms possible on Ul.

*Phellodendron insularis*: Uilung Island endemic; cold-hardy evergreen tree up to 10 m tall.

Physocarpus insularis: Ullung Island endemic

Pinus koraiensis: Hardy, vigorous strains from Kangwon.

Populus maximowiczii: Very hardy, attractive tree from Kangwon.

Prunus maackii, P. padus, P. sargentii

Quercus mongolica and other spp.: Extremely hardy selections from high altitude.

Rhododendron brachycarpum: Extremely hardy evergreen species, isolated populations on Ullung Island.

R. schlippenbachii: Selection for varied flower color, substance; vigor and leaf quality in Kangwon.

Sambucus pendula: Ullung Island endemic, highly ornamental.

Sorbus commixta: Highly ornamental heat and cold resistant species on Ullung Island and on mainland, at high altitudes.

Styrax japonica: Hardiness potential at northern end of range in Kangwon.

Syringa dilatata, S. reticulata, S. velutina, S. wolfii: Superior forms with great hardiness from Kangwon.

Syringa venosa: Ullung Island endemic.

Taxus cuspidata: Selections for extreme hardiness at high altitudes in Kangwon.

Thuja koraiensis: Very hardy rare conifer from Kangwon.

Tilia insularis: Ullung Island endemic rare in cultivation.

Tsuga sieboldii: Isolated populations on Ullung Island, only site in Korea.

Ulmus davidiana, U. parviflora: Hardy selections from Kangwon.

Viburnum carlesii: Long-isolated populations on Ullung Island.

V. furcatum: Long-isolated populations on Ullung Island.

V. wrightii: Superior forms from Kangwon.

# COLLECTORS COLUMN



## THE UNITED STATES NATIONAL BONSAI COLLECTION

James R. Newton

IN A HUMAN sense ten years may seem like an eternity. Yet a decade is but a moment in the life of a masterpiece bonsai, which may outlive its owner by several hundred years.

This does not mean no changes occur for often such changes are slow. They can be subtle and as complex as human growth from childhood to maturity. The United States National Bonsai Collection, which celebrated its tenth anniversary in July 1986, is living proof of this gradual metamorphosis. Several 1976 photographs included here with their 1985 counterparts show sometimes dramatic changes.

The brainchild of Dr John L. Creech, the third director of the National Arboretum in Washington, D.C., the concept actually began three years before the collection's official dedication ceremonies. In correspondence with the Nippon Bonsai Association, Dr Creech broached the idea of a unique cultural gift that would help the United States celebrate its two hundredth birthday in 1976. He reasoned such an exchange would be a particularly appropriate gift because of the mutual interest in ornamental plants in our two countries, and because bonsai, an honoured form of plant culture in Japan, had begun to attract considerable attention in the United States which has many local and several national bonsai organisations.

The original plan was for fifty trees to be donated, one for each American state. However when the Imperial family indicated a desire to donate specimens, there was no demurring, and fifty-three trees were finally selected and donated. Directors of the Nippon Bonsai Association spent months of preparation in selecting the bonsai and their containers, repotting the plants, arranging the presentation ceremonies, exhibiting the collection before it left Japan, and preparing the trees for shipment to the United States.

Thirty-four species were represented of which half were deciduous and half evergreen or semi-evergreen. Two Japanese Maples, each thirty years old, were the babies of the collection, while the older generation was headed by a 350 years old Japanese White

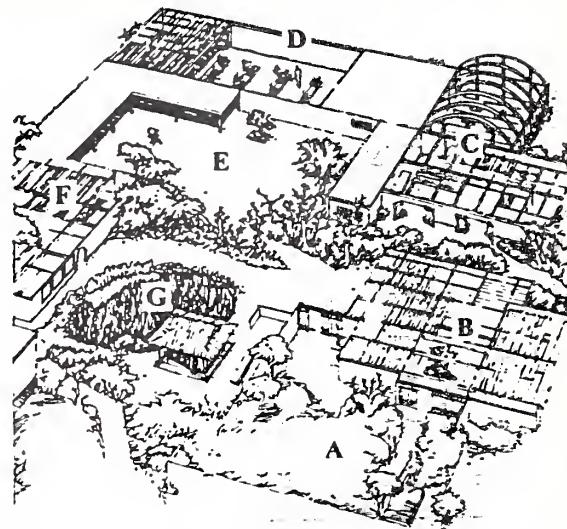
Pine. In addition to the fifty-three bonsai, six magnificent viewing stones (*suikei*) were also presented including a majestic Chrysanthemum Stone (*Kikkaseki*) donated by Mr Kiyoshi Yanagisawa which had been in his family for a very long time and had come to represent the respected family patriarchs. Another stone whose configuration is reminiscent of a natural scene—perhaps a distant mountain with a glacier, or a rushing stream—is a favourite form of *suikei*.

Of the Bicentennial Bonsai as they were originally dubbed (see the article by Sharon Zeisnitz in the May-June 1976 ARTS OF ASIA called "A Living Gift—Bicentennial Bonsai") half the miniature trees were donations from private sources, including some from members of the Japanese royal family, while the remainder were purchased with funds provided by a semi-official cultural exchange agency of the Japanese government, The Japan Foundation, which also provided funds to send expert Japanese bonsaiists to the United States to instruct in the proper care of the miniatures.

Following the Tokyo dedication, the trees were packed in specially designed crates and flown by commercial airline to Washington, where they remained in quarantine for a minimum of one year, as required by American law, at the U.S. Department of Agriculture's Plant Introduction Station in Glenn Dale, Maryland. In fact the trees have never been officially released from quarantine, and the soil from each repotting is still sent to the Plant Introduction Center for inspection and analysis. This situation probably will continue indefinitely according to the Curator of the collection, Mr Robert F. Drechsler.

Having resolved the problems of money, transportation, selecting a curator, learning how to care for the newcomers, and quarantine matters, the question of housing the collection in suitable surroundings had to be tackled.

The initial design for a National Bonsai Complex, the work of Mr Masao Konoshita then of Sasaki Associates, carried the subtle message of elegant simplicity (*shibui*) in-



herent in most Japanese art-forms including bonsai. It linked a series of connected spaces in the way found in the plans of Japanese temples and shrines. Meant to mirror in a natural setting the stages of human experience, the viewer is presented, from beginning to end, with a series of new vistas of increasing serenity.

From an entrance garden presented in 1983 to the American people by the Washington D.C. Chapter No. 1, Ikebana International, as a memorial to Ellen Gordon Allen, the organisation's founder, a walkway leads through a tall, shadowed Cryptomeria (*tsugi*) grove, planted in 1976. The path is bordered with rare Japanese woodland plants. The visitor enters the grove through a ceremonial gate of rough textured granite slabs, a winding path leading on to the Japanese Pavilion, where the main collection is housed. Here, one of the most outstanding trees—a regal Red Pine (*Pinus densiflora*, Japanese name *Aka-matsu*), gift of the Imperial household—greets the visitor.

Construction of the Japanese Pavilion was completed in time for the official dedication in July 1976. Built with government funds, it has remained the only permanent bonsai structure so far built. However, the coming decade promises to be a period of dramatic development because interest in the art of bonsai has grown tremendously in the United States. To many Americans—as well as other Westerners—bonsai is no longer considered strictly an Oriental art-form. While techniques may be similar, adaptations by different cultures in different climates show fascinating variations. Superb bonsai are being created in America using native plant materials trained to express native habitats and manners of growth.

American bonsai aficionados have always been the staunchest supporters of the National Bonsai concept. To better channel this support to the existing collection, and to further develop the concept of a truly American bonsai enclave, a group of active bonsai enthusiasts organised the National Bonsai Foundation. Incorporated as a non-profit,

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